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BULLETIN
of Duke University

1974



1975

UNDERGRADUATE
INSTRUCTION

Bulletin of
Duke University, *Durham, N.C.*

Undergraduate Instruction

Trinity College of Arts and Sciences
The School of Engineering
The School of Nursing

1974-1975

Durham, North Carolina 1974

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University Calendar—1974-1975

1974

August		
29	Thursday	—Orientation begins: assemblies for all new undergraduate students
September		
3	Tuesday, 9:00 a.m.	—Fall semester classes begin
October		
18	Friday	—Last day for reporting midsemester grades
28-31	Monday-Thursday	—Registration for spring, 1975
November		
26	Tuesday, 6:00 p.m.	—Thanksgiving recess begins
December		
2	Monday, 9:00 a.m.	—Classes are resumed
8	Sunday	—Founders' Day
10	Tuesday, 6:00 p.m.	—Fall semester classes end
11-12	Wednesday-Thursday	—Reading Period
13	Friday	—Final examinations begin
20	Friday	—Final examinations end

1975

January		
9	Thursday	—Orientation begins: assemblies for all new students
10	Friday	—Registration and matriculation of new and nonregistered students
13	Monday, 9:00 a.m.	—Spring semester classes begin
February		
21	Friday	—Last day for reporting midsemester grades
March		
7	Friday, 6:00 p.m.	—Spring recess begins
17	Monday, 9:00 a.m.	—Classes are resumed
3/31-4/3	Monday-Thursday	—Registration for fall and summer, 1975
April		
25	Friday, 6:00 p.m.	—Spring semester classes end
26-28	Saturday-Monday	—Reading Period
29	Tuesday	—Final examinations begin
May		
6	Tuesday	—Final examinations end
10	Saturday	—Commencement begins
11	Sunday	—Commencement: Baccalaureate Service and Graduation Exercises

University Administration

General Administration

Terry Sanford, J.D., LL.D., D.H., L.H.D., D.P.A., *President*
John O. Blackburn, Ph.D., *Chancellor*
Frederic N. Cleaveland, Ph.D., *Provost*
Charles B. Huestis, *Vice President for Business and Finance*
William G. Anlyan, M.D., *Vice President for Health Affairs*
Juanita M. Kreps, Ph.D., *Vice President*
Stephen Cannada Harward, A.B., C.P.A., *Treasurer*
J. Peyton Fuller, A.B., *Controller*
J. David Ross, J.D., *Director of Development and Director of Campaign Planning*
Harold Lewis, Ph.D., *Vice Provost and Dean of the Faculty*
John C. McKinney, Ph.D., *Vice Provost and Dean of the Graduate School*
Anne Flowers, Ed.D., *Acting Vice Provost and Acting Dean of Trinity College of Arts and Sciences*
Joel L. Fleishman, LL.M., *Vice Chancellor for Public Policy Education and Research; Director of Institute of Policy Sciences and Public Affairs*
Frederick C. Joerg, M.B.A., *Assistant Provost for Academic Administration*
Benjamin Edward Powell, Ph.D., *Librarian*
William E. King, Ph.D., *Archivist*
Clark R. Cahow, Ph.D., *University Registrar*
Olan Lee Petty, Ph.D., *Director of the Summer Session*
Rufus H. Powell, LL.B., *Secretary of the University*
Victor A. Bubas, B.S., *Assistant to the President*
A. Kenneth Pye, LL.M., *University Counsel*

Undergraduate Administration

Anne Flowers, Ed.D., *Acting Vice Provost and Acting Dean of Trinity College of Arts and Sciences*
Ruby L. Wilson, R.N., Ed.D., *Dean of the School of Nursing*
George W. Pearsall, Sc.D., *Dean of the School of Engineering*
Wesley Kort, Ph.D., *Acting Assistant Provost and Acting Associate Dean of Trinity College of Arts and Sciences*
William J. Griffith, A.B., *Assistant Provost and Dean of Student Affairs*
Richard L. Cox, B.D., Th.M., *Dean of Students*
Clarence G. Newsome, A.B., *Acting Dean of Block Affairs*
Virginia S. Bryan, Ph.D., *Assistant Dean of Trinity College of Arts and Sciences*
Clark R. Cahow, Ph.D., *Acting Director of Undergraduate Admissions*
Susan Carr, B.S., *Assistant Director of Career Development and Continuing Education*
David M. Clayborne, M.A., *Assistant Dean of Trinity College of Arts and Sciences*
James Douthat, B.D., *Assistant Dean of Students*
Walter G. Emge, Ph.D., *Assistant Dean of Trinity College of Arts and Sciences*
Stephen C. Frederick, A.B., B.D., *Assistant Dean of Trinity College of Arts and Sciences*
Rhett T. George, Jr., Ph.D., *Assistant Dean of the School of Engineering*
Shirley Hanks, A.B., *Assistant to the Director of Career and Continuing Education*
Lillian A. Lee, M.S.Ed., *Assistant Dean of Students*
James C. Little, Ph.D., *Assistant Dean of Trinity College of Arts and Sciences*
Otto Meier, Jr., Ph.D., *Assistant Dean of the School of Engineering*
Ada Most, R.N., Ed.D., *Director of Academic Programs of the School of Nursing*
Pauline D. Myers, *Assistant to the Dean of the School of Nursing*
Elaine T. Nagey, B.A., M.Ed., *Staff Assistant for Academic Affairs of the School of Nursing*
Elizabeth Studley Nathans, Ph.D., *Assistant Dean of Trinity College of Arts and Sciences*

Jean F. O'Barr, Ph.D., Director of Career Development and Continuing Education
Gwen Sherrill Parker, A.B., Assistant to the Dean of Black Affairs
Paula R. Phillips, A.B., Assistant Dean of Trinity College of Arts and Sciences
Richard J. Rohlf, Ph.D., Acting Director of the University Counseling Center
Ella E. Shore, M.R.E., M.A., Dean of Student Affairs of the School of Nursing
Howard Strobel, Ph.D., Assistant Dean of Trinity College of Arts and Sciences
Gerald L. Wilson, B.D., M.A., Assistant Dean of Trinity College of Arts and Sciences
Ellen W. Wittig, Ph.D., Assistant Dean of Trinity College of Arts and Sciences



Boards of Visitors

The School of Engineering

- Edwin A. Bescherer, Retired Executive Director of Laboratories, Bell Telephone Company
Theodore G. Birdsall, Professor, Department of Electrical and Computer Engineering, University of Michigan
Carl C. Chambers, University Professor of Engineering, University of Pennsylvania
Paul F. Chenea, Vice President, General Motors Corporation
Carl F. Floe, Vice President for Research Administration, Massachusetts Institute of Technology
Harold L. Flowers, Program Manager, Weapon System Integration, McDonnell Douglas Astronautics Company
George R. Herbert, President, Research Triangle Institute
Walter C. Johnson, Professor, Department of Electrical Engineering, Princeton University
Kenneth H. Keller, Professor, Department of Chemical Engineering and Materials Science, University of Minnesota
William S. Lee, Vice President for Engineering and Construction, Duke Power Company
Nathan M. Newmark, Professor, Department of Civil Engineering, University of Illinois
Morrrough P. O'Brien, Professor/Consultant, Coastal and Oceanographic Engineering Laboratory, University of Florida
Simon Ostrach, Head, Division of Fluid, Thermal and Aerospace Sciences, Case Western Reserve University
Robert H. Pinnix, President, R. H. Pinnix, Inc.
William M. Siebert, Professor, Electrical Engineering Department, Massachusetts Institute of Technology
Wilbur S. Smith, Wilbur Smith and Associates, Consulting Engineers
W. Brewster Snow, Quirk, Lawler, and Matusky Engineers
F. W. Steckmest, Consultant, Public Affairs, Shell Oil Company

The School of Nursing (Medical Center)

- Karl D. Bays, President, American Hospital Supply Corporation
Edward H. Benenson, President, Benenson Management Company, Inc.
Earl W. Brian, Secretary, Health and Welfare Agency of California
John A. D. Cooper, President, Association of American Medical Colleges
Kenneth R. Crispell, Dean, School of Medicine, University of Virginia
Harry Eagle, Associate Dean, Albert Einstein College of Medicine
James R. Felts, Jr., Executive Director, Hospital and Child Care Sections, Duke Endowment
Loretta Ford, Dean, School of Nursing, University of Rochester
C. Henry Kempe, Chairman and Professor of Pediatrics, University of Colorado
John H. Knowles, President, Rockefeller Foundation
Alexander Leaf, Chairman of the Department of Medicine, Harvard Medical School
Raymond D. Nasher, The Raymond D. Nasher Company
William R. Pitts, Physician, Chorlotte, North Carolina
Frank W. Putnam, Professor of Zoology, Indiana University
Henry E. Rauch, Vice Chairman, Board of Trustees, Duke University
June S. Rothberg, Dean, School of Nursing, Adelphi University
Anne R. Somers, Associate Professor of Community Medicine, Rutgers Medical School
Mitchell W. Spellman, Dean, Charles R. Drew Postgraduate Medical School
Richard J. Stull, Executive Vice President, American College of Hospital Administrators



1

General Information

Duke University

Duke University is one of the youngest of the major private universities in the United States, and one of the older institutions of private learning. In 1839 a group of citizens from Randolph and adjacent counties assembled in a log schoolhouse to organize support for a local academy founded a few months earlier by Brantley York. Prompted, they said, by "no small share of philanthropy and patriotism," they espoused their belief "that ignorance and error are the banes not only of religious but also of civil society which rear up an almost impregnable wall between man and happiness." The Union Institute which they then founded was reorganized in 1851 as Normal College to train teachers, and again in 1859 as Trinity College, a liberal arts college which in 1892 moved from the fields of Randolph County to the growing city of Durham, North Carolina. It was this college which James B. Duke selected as the major recipient of a fortune when, in 1924, he provided endowment funds for the university that would bear his name.

The name *Trinity* remains as the undergraduate college of arts and sciences. The old Trinity College had, like almost all institutions in America at the time in which it was founded, been restricted to men. In 1896, Washington Duke gave an endowment with the condition that women be admitted "on equal footing with men." Thereafter, women were educated in Trinity College, and in 1930 The Woman's College was established as a separate, coordinate college. For over forty years, these coordinate colleges continued, with instruction being offered by the University faculty, but with residents remaining a mile apart, the women on East Campus, the site of old Trinity College, and the men on West Campus, the site of the newer Duke University buildings begun in 1924. In order to assure that women were indeed admitted "on equal footing with men," and to recognize that the education which men and women had received at Duke had long taken place in the same classrooms, the University merged these coordinate colleges in 1972 to form Trinity College of Arts and Sciences, an administrative unit responsible for undergraduate admissions, programs of instruction, academic and personal counseling, and residential life.

As early as 1851, Normal College included courses in surveying, architecture, and engineering. Separate departments of civil, electrical, and mechanical engineering were established later, and in time these three departments were grouped administratively to form, first, the Division, then the College, and finally in 1966 the School of Engineering in recognition of its professional status at both undergraduate and graduate levels. In 1967 a division of biomedical engineering was added and jointly sponsored by the Medical School. In 1971 it was given departmental status. All four departments offer courses leading to the B.S.E., M.S., and Ph.D. degrees.

The School of Nursing was established in 1931 in association with the School of Medicine and Duke Hospital. The three-year curriculum led to the Diploma in Nursing. After 1938 any student who also completed two years of acceptable college work was awarded a Bachelor of Science degree as well. A four-year program leading to the degree of Bachelor of Science in Nursing was approved by the University Board of Trustees in 1953, when the School of Nursing was incorporated into the Division of Health Affairs.

As the University developed around the core of undergraduate colleges and schools, its Graduate School has expanded in areas of instruction and research; the School of Law of Trinity College became the Duke University School of Law; and other professional schools were established. The Divinity School was organized in 1926, the School of Medicine in 1930, the School of Forestry in 1938, and the Graduate School of Business Administration in 1969.

Duke, a privately supported, church-related (Methodist) University, has about 8,500 students enrolled in degree programs. These students annually represent nearly every state and sixty foreign countries; there are now more than 47,000 alumni in all fifty states and in many foreign countries. The University is a member of the North Carolina and Southern Associations of Colleges and Schools, and of the Association of American Universities.

From academy to university some of the basic principles have remained constant. The Duke University motto, *Eruditio et Religio*, reflects a fundamental faith in the union of knowledge and religion, the advancement of learning, the defense of scholarship, the love of freedom and truth, a spirit of tolerance, and a rendering of the greatest service to the individual, the state, the nation, and the church. Through changing generations of students the objective has been to encourage each individual to achieve to the extent of his capacities an understanding and appreciation of the world in which he lives, his relationship to it, his opportunities, and his responsibilities.

Resources of the University

The Faculty. The University faculty of almost 1,100 maintains a tradition of personal attention to students. Many members of the faculty are or have been national leaders in their various professional organizations, as well as consultants to industry, government, or foundations, and their contributions to scholarship include many publications growing out of research. To honor outstanding faculty members, the University has established more than thirty James B. Duke professorships, in addition to other named professorships.

The Libraries. To support a rich educational experience in a world of rapid and far-reaching change, great library collections are essential. Undergraduate students at Duke are fortunate to have available exceptional resources. The University library, among the nation's twenty largest university libraries, contains 2,333,500 volumes; 4,180,000 manuscripts; and about 250,000 maps, broadsides, photographs, and materials in microtext form. Almost 14,500 periodicals and 200 newspapers are received currently.

A division of photographic services, with the most modern cameras and other equipment for microfilming and photographing printed and manuscript



materials, provides reading machines to serve the library's large collection of microtext copies of rare books, periodicals, and newspapers. In addition to ample study space there are comfortable reading rooms for those consulting rare books, manuscripts, government publications, newspapers, and periodicals.

The library on East Campus contains 199,600 volumes in an open stack collection, chiefly those books most frequently used in the undergraduate curriculum. The School of Engineering also maintains its own library which contains 49,000 volumes and 500 periodicals. As part of the Medical Center Library, the School of Nursing Library, located in Hanes House, has reference materials including over 7,000 books, current periodicals, and audiovisual aids. The School of Medicine Library contains over 90,000 volumes and 1,600 current periodicals and is open to nursing students.

Undergraduates also have access to additional departmental and professional school libraries plus those of nearby universities through an inter-library loan service.

Computation Center. The Duke University Computation Center provides the University faculty and students with a facility for research and instruction. The center is presently equipped with an IBM System 370 Model 135 (240K bytes, one 2314 disk facility, three tape drives, two card readers, two printers, and a Calcomp plotter) which is connected by high-speed telephone lines to an IBM System 370 Model 165 (three million bytes of memory, one 3330 and two 2314 disk facilities, five tapes, card reader, and printer) located at the Triangle Universities Computation Center (TUCC) which is in the Research Triangle Park. In addition, there are two medium-speed terminals (card reader and printer) located in the Engineering Building and in the Sociology-Psychology Building and several other low-speed keyboard terminals. TUCC is a nonprofit corporation formed jointly by Duke University, North Carolina State University at Raleigh, and the University of North Carolina at Chapel Hill. The purpose of TUCC is to provide computing capabilities equal in quality to the finest available.

Faculty members at Duke may use the facilities of the Computation Center upon application for computer services. All users of the Computation Center

facilities are urged to obtain funds to pay for computer services. Any user unable to obtain grant funding may ask for financial support from his department when he applies for the services.

More specific information regarding Duke computing facilities may be obtained from the Director of the Computation Center.

Science Laboratories. In addition to the teaching and research laboratories in the departments of natural and social sciences, and in the Schools of Engineering and Nursing, there are other facilities in which some advanced undergraduates work on individual projects. These include the Duke University Marine Laboratory in Beaufort, North Carolina; the Highlands Biological Laboratory in Highlands, North Carolina; the phytotron of the Southeastern Plant Environment Laboratories located on the Duke campus; the Duke Forest adjacent to the campus, and the Triangle Universities Nuclear Laboratory also on the campus.

School of Nursing Instructional Facilities. Facilities for instruction in the School of Nursing include resources in the undergraduate college as well as in professional and graduate schools of Duke University and in the clinical facilities at Duke Hospital, Durham Veterans Administration Hospital, North Carolina Cerebral Palsy Hospital, Durham City-County Health Department, John Umstead Hospital, Johnston County Health Department, and numerous other health agencies in the vicinity.

The Undergraduate College and Schools

In Trinity College of Arts and Sciences and the Schools of Engineering and Nursing, instruction is offered by University faculty who engage in research, and in graduate and undergraduate teaching. Duke offers its undergraduates the opportunity to study with many internationally recognized authorities in their disciplines, and with faculty members who are jointly committed to undergraduate instruction and to advance knowledge. The University recognizes that students learn not only through formal lectures, but also through the interplay of ideas among faculty members and students; thus, it offers undergraduates the opportunities to test their ideas against those of their professors and to observe at close range those who have committed their careers to the academic life. At the same time it recognizes that students should learn much from one another, and most of all should look to themselves as they undertake to fulfill the Socratic maxim, "know thyself."

Trinity College of Arts and Sciences. The undergraduate liberal arts student at Duke University has many options of curricular and cocurricular programs and of residential life. The curricular offerings, the educational facilities, and the University faculty of arts and sciences within Duke University provide students with a maximum opportunity for the development of special interests and talents. The cocurricular programs and activities in the residence halls reinforce the academic curriculum and provide various ways of bringing students and faculty together. The residential options include units for women, men, as well as units for men and women on separate floors or halls. Living-learning interest groups occupy some residences in part or in total; and, in other instances, such groups as fraternities, men's dormitories, and women's dormitories have joined in federations to sponsor shared academic and cocurricular programs.

School of Engineering. The undergraduate engineering program at Duke University is designed both for students who intend to become professional engineers and for those desiring a modern, general education, based on the problems, and the promises of a technological society. The environment in which students are educated is as important in shaping their future as their

classroom experiences. In the Duke School of Engineering, this environment has two major components: one of modern technology derived from the research and design activities of faculty and students in the School; and the other, the liberal arts environment of the total University, with its humanitarian, social, and scientific emphases.

Engineering is not a homogeneous discipline; it requires many special talents. Some faculty members in the School of Engineering are designers; they are problem-oriented, concerned with teaching students how to solve problems—how to synthesize relevant information and ideas and apply them in a creative, feasible design. Other engineering faculty members function more typically as scientists; they are method-oriented, using the techniques of their discipline in their teaching and research to investigate various natural and man-made phenomena.

Engineering students, at Duke develop the facility to reason and to communicate in at least two “languages”—English and mathematics—and they learn to understand man in both a private and a social context so they can apply technology to help improve the quality of life.

School of Nursing. The School of Nursing is committed to promoting human health and welfare through providing foundations for knowledgeable nursing services and is committed to contributing to the attainment of the University's aims of teaching, research, and public service. In support of this the School of Nursing aims to prepare its graduates to function as practitioners of professional nursing in roles most appropriate to the level of their preparation. The School also aims to provide its students with an educational background which will serve as a basis for advanced study in nursing in addition to continued professional and personal growth.

The faculty of the School of Nursing subscribes to the concept that a professional nurse is a person who has acquired the specialized knowledge of nursing, who has attained abilities useful in the practice of nursing, and who has developed attitudes appropriate to the profession of nursing.

The faculty conceives professional nursing to be a service which contributes to the health and well-being of people. Professional nursing practice is interacting with human beings under stress, frequently over long periods of time; providing comfort and support in times of pain, anxiety, loneliness, and helplessness; using the nursing process to make judgments in establishing, implementing, maintaining, and/or modifying a plan of health care; and knowing when and how to use existing and potential resources to help patients toward recovery and adjustment. Professional nursing practice is sharing responsibility for the health and welfare of all those in the community; participating in programs designed to prevent illness and maintain health; coordinating professional and technical services in the best interest of patient care; and supervising, teaching, and directing those who give nursing care. Professional nursing practice requires constant evaluation; asks questions and seeks answers which will add to the body of nursing knowledge; and transmits and uses this knowledge, including research findings, to improve health services to people. Professional nursing practice requires knowledge and skill of a high order and provides opportunities for personal and professional fulfillment.

The faculty believes that the primary aim of nursing education is to provide an environment in which the student can develop self-discipline, intellectual curiosity, the ability to think critically, and acquire knowledge and skills necessary for practice. It believes that learning is manifested by change of behavior, resulting from experience; that an atmosphere for learning is offered in a climate which encourages self-direction and creativity; that the student who seeks admission to the School comes with the intent of practicing professional nursing; and that the curriculum offered aids the student in realizing this intent and in stimulating the desire for continued professional growth.



2

Degree Programs

Degrees Offered

Duke University offers, through Trinity College of Arts and Sciences, the degrees of Bachelor of Arts and Bachelor of Science; in the School of Engineering, the degree of Bachelor of Science in Engineering; and in the School of Nursing, the degree of Bachelor of Science in Nursing. Within the four-year curriculum of each college or school, the student has the major responsibility for designing and carrying through a course program appropriate to this background and goals. He is assisted in this task by a faculty adviser, departmental directors of undergraduate studies, supervisors of freshman instruction, and by the academic deans of his school or college.

Credit toward the degrees is earned in units called semester-courses (s.c.), which ordinarily consist of three to four hours of instruction each week of the semester. Double-courses, half-courses, and quarter-courses are also recognized.

Trinity College of Arts and Sciences

In the arts and sciences curriculum, either of two programs leads to the Bachelor of Arts or Bachelor of Science degree. The programs provide a variety of approaches to a liberal arts education. In both Program I and Program II a student is permitted to study in the following divisions of learning:

Humanities. Art, classical studies (including Greek and Latin), English, Germanic languages and literature, music, philosophy, religion, Romance languages (including French, Italian, Portuguese, and Spanish), and Slavic languages and literatures (including Russian).*

Natural Sciences and Mathematics. Botany, chemistry, computer science, genetics, geology, mathematics, physics, and zoology.

Social Sciences. Anthropology, Canadian studies, comparative area studies, economics, education, health and physical education, history, management sciences (including accounting), political science, public policy studies, psychology, and sociology.*

*Also included are Black studies and medieval and Renaissance studies.

PROGRAM I

Program I provides a flexible approach to the Bachelor of Arts or Bachelor of Science degree by enabling a student to choose, within broadly stated requirements, the particular subjects which best suit his intellectual interests and educational goals. The requirements, in brief, are listed below with page references to specific discussions of each.

1. The satisfactory completion of 32 semester-courses, including:
 - (a) at least 16 at Duke (ordinarily including the work of the senior year);
 - (b) at least 12 at the advanced level;
 - (c) no more than 4 in military science; and
 - (d) no more than 2 with a grade of *D*.(See pages 11 and 34.)
2. A distribution of courses among the three divisions of learning. (See below.)

Division I: the courses of the major. (See pages 8, 9, 10, and the section on Departmental Major following each department's course descriptions.)

Division II: at least 4 semester-courses, including 2 at the advanced level, in one of the remaining, non-major divisions. (See pages 9 and 11.)

Division III: at least 2 semester-courses. (See page 9.)
3. Proficiency in English composition. (See page 9.)
4. Small-group learning experiences:
 - (a) before reaching junior status
 - (1) At least one full semester-course designated as a seminar, tutorial, or independent study, or
 - (2) A combination of two preceptorials or discussion sections.
 - (b) junior and senior years
At least 2 semester-course credits for seminars, tutorials, independent study, or a thesis.(See pages 9 and 10.)
5. Physical activity for two semesters in courses or in an approved program. (See page 11.)
6. Quality of work: all passing grades are expected. (See pages 11-12 for minimum requirements.)

Distribution of Courses. Program I enables a student to achieve breadth of academic and intellectual experience by requiring that he complete at any time within eight semesters a number of semester-courses in each of the three divisions of learning. (See below.) The courses selected in each division must be those in which the essential subject matter and substance of the discipline are presented, i.e., not a skill course. An interdepartmental course, an interdivisional course, or a course from a professional school may not be used to satisfy distributional requirements unless it is cross-listed in an arts and sciences department. Courses offered in one division may not be used to satisfy distributional requirements in another division, but courses used to satisfy the requirements for small-group experiences may be used to satisfy distributional requirements. Courses taken on the pass/fail basis do not satisfy the distributional requirements unless offered only on a pass/fail basis. A student must complete a certain number of courses, excluding skill courses, in each of the three divisions as follows:

First Division. The division of the major (or concentration) is called the first division. Each student must complete requirements for a major (concentration) in a single discipline or in an interdisciplinary program. In so doing

he will complete automatically courses in one of the three divisions. (See page 10.)

Second Division. A student must pass at least 4 semester-courses in a second division of his own choice. At least 2 of the 4 courses must be at the advanced level. (See page 11 regarding advanced work.)

Third Division. A student must pass at least 2 semester-courses in the third division of his choice.

Skill Courses That Do Not Satisfy Distributional Requirements of Program I*

Art	53-54
Chinese	101-102 (UNC-CH); 131, 132; 133, 134
Classical Studies	Greek 1-2 Latin 1-2
Education	105; 106; 107; 108; 151; 152; 153; 154; 161; 162; 195; 196; 201; 215; 216; 225; 226; 236; 237; 239; 246; 266; 276
English	1; 50; 65, 66; 101; 103, 104; 105; 106; 110; 120; 130; 139
German	1-2; 63; 105; 117, 118; 181, 182
Health Education	134; 192
Physical Education (Women)	61-62; 102; 103; 105; 106; 117; 119S; 132; 161-162
Physical Education (Men)	100-101; 121; 125; 126; 127; 130; 132; 133; 140; 141; 142; 164; 165; 170; 171; 172; 173
Hindi-Urdu	181, 182; 183, 184
Japanese	151, 152, 153, 154
Mathematics	19
Music	7, 8; 57; 58; 59; 60; 65; 107, 108; 151; 152; 153; 154; Applied Music (except for tutorials)
Psychology	117
Romance Languages	French 1-2; 63; 64; 76; 100; 150T; 181 Italian 1-2; 63; 64; 181 Portuguese 181 Spanish 1-2; 63; 64; 76; 100; 150T; 181
Russian	1-2; 63-64; 81, 82
Swahili	101, 102

Proficiency in English Composition. Each student is required to demonstrate his ability to write effective English prose either by presenting a score of 700 or higher on the College Entrance Examination Board (CEEB) English Composition Achievement Test, or by passing a semester-course (English 1) in English composition usually in the first semester of enrollment.

Proficiency in Foreign Language. Certain departments recommend or require foreign language proficiency for their majors. Candidates for the B.S. degree may be required by their major departments to be proficient in a particular foreign language. (See pages 29 and 30.)

Small-Group Learning Experiences. In supplementing the classroom and large lecture method of instruction, small-group learning experiences assure the student opportunities to engage in discussion, develop skills, refine judgment, and have his ideas challenged. A seminar (ordinarily indicated by the suffix S) consists of a group of twelve to fifteen students who together with an instructor engage in disciplined study and discussion. A preceptorial (P) is

*In addition, certain courses, e.g., military science courses and courses offered in the professional schools, do not satisfy distributional requirements.

a discussion meeting between an instructor and, usually, no more than twelve students. It is an additional and optional unit attached to a regular course, and involves an extra meeting weekly. A *discussion section (D)* is comprised of approximately ten students and an instructor in a group that is part of a regular course. It differs from a preceptorial in that every student in the course participates in a discussion group, whereas the preceptorial is optional. A *tutorial (T)* is a meeting between an instructor and, usually, one to five students, independent of any other course. *Independent study* varies according to the subject matter and research methods of the disciplines and the interests of students and their supervising professors. It may consist of extensive reading and research in the literature of a discipline, followed by the writing of a substantial paper, a laboratory research project, work in field research, or the composition of a play or a novel. A special form of independent study, particularly for departmental majors, is the preparation of a thesis or the completion of a major independent project in the junior, but more often in the senior year. For some students it provides an opportunity for integrating their understanding of several disciplines. For others it permits intensive consideration of specific topics previously encountered but insufficiently explored. And for still others, it is original research and the development of new insights and knowledge. See page 33 for procedures for enrolling in independent study. The requirements for small-group experiences are listed on page 8.

Major (Concentration). Although students in Program I are expected to achieve breadth of intellectual experience by taking courses in each of the three divisions of learning within the University, they are also expected to acquire some mastery of a particular discipline or interdisciplinary area. Each student must, therefore, concentrate a portion of his studies thereby completing a departmental major, an interdisciplinary major, or an interdepartmental concentration. (See pages 33-34 for procedures for declaring the major or concentration.)

Departmental Major. To pursue a departmental major, a student in Program I must pass a number of courses within the major department as specified by that department as well as courses in other departments as may be necessary or helpful for effective performance in the major. These requirements are set forth in the section entitled *Departmental Major* following each department's course descriptions. A major consists of at least 5 courses in one department above the introductory level, but not more than 8 semester-courses for the A.B. degree and not more than 10 semester-courses for the B.S. degree. If he wishes the student may elect a more intensive major program. A student who completes requirements for the major in two departments may have both majors recorded on his official record. Foreign language departments may at their discretion begin their major after the elementary and intermediate courses.

Interdisciplinary Major. A student may satisfy the requirement by completing work prescribed for a major in an approved program. These programs include Black Studies; Comparative Area Studies: Africa, Asia, Latin America; Comparative Literature; Medieval and Renaissance Studies; and Public Policy Studies.

Interdepartmental Concentration. A student in Program I may desire to pursue an interdisciplinary program of his own and his advisers' design as an alternate means of satisfying the major requirement. An interdepartmental concentration consists of at least 3 courses beyond the introductory level in each of two or more departments. (See page 33 for procedures for planning an interdepartmental concentration.)

Advanced Courses. Of the 32 courses required for graduation, at least 12 must be at the advanced level. Normally, these courses are numbered in the 100- and 200-series.

Physical Activity. All students are required to complete two semesters of approved physical activity unless excused for medical reasons. This requirement may be met either by satisfactory completion of physical education courses or by an alternate form of physical activity approved by the appropriate department of physical education. The work is normally completed in the freshman year. Pass/fail grades are assigned, and credit for the courses or alternative activities do not count among the 32 courses needed for graduation. Elective activity courses for credit are available for students who have completed the requirement. A student who has completed a full calendar year or more of active duty in the military forces of the United States may be excused from this requirement.

Military Science Courses. No more than 4 courses in the military sciences may be counted among the 32 courses required for graduation. These courses are normally taken in the junior and senior years. Additional courses, although not counted toward graduation, do appear on a student's permanent academic record.

Residence. A residence period of four academic years, that is, eight semesters, is the normal amount of time a student may take to earn either the Bachelor of Arts or Bachelor of Sciences degree. This period may be extended for one or two semesters by a student's academic dean for legitimate reasons, and if it seems probable that an extension will enable the student to complete all remaining requirements for graduation. A student will not be permitted residence of more than five academic years, that is, ten semesters, in order to be graduated.

For the minimum residence period, at least 16 courses must be satisfactorily completed at Duke. If only 16 courses are taken at Duke, they must include the courses of the final two semesters. A student with more than 16 courses at Duke may take 2 courses of the last year in another institution of approved standing. With the approval of their major adviser and their academic dean, students who have completed six full semesters of work at Duke may take 4 courses in their last year at another institution of approved standing. Any courses taken elsewhere must be approved by the student's adviser and academic dean.

A former student of The Woman's College who has been out of college for six or more years may take up to 10 courses or 30 semester hours of work in another institution of approved standing in final fulfillment of graduation requirements. Further information about this special provision can be obtained from the Associate Dean of Trinity College of Arts and Sciences.

Quality of Work (Continuation Requirements). A student must achieve a satisfactory record of academic performance each semester and make satisfactory progress toward graduation each year to continue enrollment in college. A student who fails to meet these minimum requirements described below must leave college for at least two semesters. A summer session may be counted as a semester. He may apply to the Associate Dean of Trinity College of Arts and Sciences for readmission. If after readmission the student again fails to meet the continuation requirements, he will be permanently dismissed from the College.

Where continuation is in question, incomplete work in any course is considered a failure to achieve satisfactory performance in that course. Such courses must be completed in time for final grades to be submitted to the Re-

gistrar no later than the day preceding the first day of classes for spring semester, or June 15 in the summer. In the case of incomplete work in the spring semester, this requirement applies whether or not the student plans to attend one or more terms of the summer session. However, the student may not enroll in a summer term at Duke until he has satisfied the requirement on satisfactory performance each semester.

Any student excluded from the college under the provisions of these regulations may at his request have his case reviewed by the Associate Dean of Trinity College of Arts and Sciences.

Satisfactory Performance Each Semester. To continue from one semester to a successive semester or summer session a student is expected to achieve passing grades in all courses. In the event that he does not pass all courses the following minimum requirements must be met: after the first semester of the freshman year a student who fails more than 1 course must withdraw from college; a freshman who fails more than 2 courses in his first semester must withdraw. A student who for any special reason has been permitted to enroll for fewer than 4 courses must earn all passing grades, with the exception that a freshman may continue from his first to his second semester although he may have earned a failing grade in 1 course.

Satisfactory Progress Toward Graduation. For continuation from year to year a student must make satisfactory progress toward fulfillment of curricular requirements and must pass a certain number of courses at Duke, as follows:

To begin enrollment in the	a student must have passed
second year	6 semester-courses
third year	14 semester-courses*
fourth year	22 semester courses
fifth year	28 semester-courses

No more than 2 courses completed with D grades may be counted toward fulfilling the requirement. Courses in the arts and sciences taken in the summer terms at Duke may be used to meet this requirement.

PROGRAM II

Nature and Purpose. An alternate approach leading to either the A.B. or B.S. degree is Program II. This program offers the student who has an unusual interest or talent in a single field, or an unusual combination of interests or talents in several fields, an opportunity to plan and carry out a special curriculum adapted to his interests and needs. The student and a departmental Program II adviser design an individual plan of work for the whole or the remainder of the student's college career. They assess his background, needs, and ambitions and evaluate the resources of the University and those outside it as means of satisfying those ambitions. They consider what academic courses would be useful but also take into account that a full semester or year of independent study or work/study on or off campus, or a period of study abroad, might seem pertinent. Each curriculum is tailored to the special interests and talents of the student for whom it is designed.

Fields of study in Program II are endless. Recent topics have included such areas as Appalachian Cultural Studies, Twentieth Century Musical Composition and Conducting, Topics in Plant Physiology, and the Political Implications of Contemporary Christian Thought.

Admission. A student interested in being considered for Program II should confer with the director of undergraduate studies in the department

*The requirement on small-group learning experiences for the freshman-sophomore year must also be fulfilled.

closest to his interest. If he appears suited to Program II, the director, other adviser, or an interdepartmental committee will counsel the student concerning the design of his curriculum. When an interdepartmental committee is needed, one department will bear administrative responsibility. The curriculum must be approved by the department and also by the Committee on Program II of the Undergraduate Faculty Council of Arts and Sciences. Upon endorsement by that committee, it becomes an obligation assumed by the student, though it may later be modified with the approval of the department and the Committee on Program II. A description of the plan is sent to the student's academic dean, and each semester the student's progress in achieving the plan is also reported.

Until formally designated a student in Program II, a student should register for courses to satisfy the curricular requirements of Program I. Upon acceptance into Program II, a student is relieved of most, but not all, requirements expected of Program I students. Should he leave Program II for any reason, the student assumes all requirements of Program I.

Usually, a student will be accepted into Program II only after he has been in residence at Duke for one or two semesters. However, a transfer student or freshman who desires to be admitted in his first semester at Duke is invited to write the Office of Undergraduate Admission before matriculation, providing a statement of qualifications and plans as a prospective Program II student.

General Requirements. Apart from the requirements arising from his approved plan of work, a Program II student must satisfy certain general requirements. He must earn 32 semester-course credits for graduation and complete the requirement for physical activity (page 11). He is subject to the requirements on military science courses (page 11) and residence (page 11), although the requirements relating to the last two semesters may be adjusted to suit the student's approved plan of work.





UNDERGRADUATE-PROFESSIONAL COMBINATION PROGRAMS

The provision whereby a senior may elect the work of the first year in a professional school of the University applies solely to eligible students in Trinity College of Arts and Sciences. The privilege of completing a combined course for the degree is conditional upon admission to the professional school at the close of the junior year. A student thus admitted registers as a first-year student in the professional school.

Forestry. Preprofessional training is offered to men and women who are planning careers in professional forestry. A student who has completed a three-year program of studies in liberal arts and sciences and who has maintained a satisfactory academic record may, with the approval of the dean of his college and the School of Forestry, transfer to the School of Forestry. A candidate must satisfy all divisional requirements as well as the course work expected of rising seniors in his major. Upon the satisfactory completion of the forestry courses ordinarily required in the first year in the School of Forestry (see *Bulletin of the School of Forestry*), the student will be eligible for the degree of Bachelor of Science from Duke University. The degree of Master of Forestry may be earned upon satisfactory completion of three additional semesters. A student interested in this combined course is encouraged to consult the Dean of the School of Forestry.

Law. A student with a distinguished academic record who has completed three years of undergraduate work, or is within two semesters of graduation, including the course requirements for the A.B. degree and work in the junior year in his major and related fields, may, with the approval of the dean of his college, apply for admission to Duke University School of Law. If admitted he will be eligible for the A.B. degree from Duke University upon completion of the work of the first year in the Law School. Only students with records of unusual academic excellence will be considered for admission to the Law School after completion of the junior year.

Medicine. The B.S. or A.B. degree may be awarded to certain students who successfully complete (1) 24 courses of undergraduate study in an approved curriculum within arts and sciences at Duke University and (2) the first year of medical study in the Duke Medical School. Such candidates are to satisfy the requirements of a departmental or interdepartmental major in arts and sciences as well as divisional requirements, or to complete satisfactorily an approved curriculum in Program II. Candidates must apply for approval through the Dean of Trinity College of Arts and Sciences after two years at Duke but before transfer to the Medical School.

PREPARATION FOR GRADUATE AND PROFESSIONAL SCHOOLS

At the earliest opportunity a student planning to enter a graduate or professional school should consult his academic dean and faculty adviser. Since many graduate and professional schools require special tests for students seeking admission, he should also obtain information regarding the requirements from the catalogues of the schools to which he plans to apply. The University Counseling Center will provide applications for the testing programs.

Graduate Schools of Arts and Sciences. As soon as practicable, the student should ascertain the requirements of the particular graduate school he desires to enter and should consult an adviser in the field of the proposed advanced study concerning preparation. Most graduate schools have requirements in foreign languages, and candidates for the degree of Doctor of Philosophy may be required to pass reading examinations, usually in German and French.

Graduate Schools of Engineering. Students interested in the possibility of graduate work in engineering should consult the Dean of the School of Engineering or the director of graduate studies in one of the engineering departments. Most engineering graduate schools require that a candidate have the equivalent of a Bachelor of Science in Engineering degree, but it may be possible for students in the natural and social sciences to obtain conditional admission if they have a sufficient background in mathematics and a desire to apply science to the solution of problems.

Graduate Schools of Nursing. Students interested in attending either graduate or post-baccalaureate programs in nursing should consult their faculty advisers, the Director of Academic Programs, or the Dean of the School of Nursing.

Graduate Schools of Business Administration. Students seeking advice concerning preparation for graduate school in business administration may consult the Department of Management Sciences. Many graduate programs in business administration are designed specifically for students with little or no undergraduate work in business. Some schools require at least one year of calculus for admission. Additional courses in mathematics can be helpful, especially linear algebra, probability, statistics, and advanced calculus. Other areas in which work can be of special value are philosophy of science and formal logic, one or more of the behavioral sciences, economics, the physical sciences, and engineering.

Medical and Dental Schools. Students planning to enter schools of medicine, dentistry, or veterinary medicine can prepare for admission by completing any of the regular departmental majors in Program I, or by Program II, and by taking those courses required by the professional schools of their choice. Virtually all medical schools and most schools of dentistry and veterinary medicine require the same basic group of college premedical courses: a year of biology, a year each of inorganic and organic chemistry, and a year of general physics. In addition many schools require a year of English and a few require a foreign language. About a third of all medical schools now require a year of calculus and some suggest courses in statistics. For a complete listing of these and other requirements set by each medical school, see *Medical School Admissions Requirements* published annually by the Association of American Medical Colleges. Order forms for this book and current copies, as well as information concerning careers in dentistry, veterinary medicine, osteopathic medicine, and many allied health professions, are available in the Office of the Premedical Adviser. Students should discuss their programs of study with their major adviser and academic dean, and with the premedical adviser.

Law Schools. Students who plan to prepare for law school should seek breadth in their undergraduate course program with specialization in one or

more areas. They may choose virtually any field for their major work. Though no specific courses are required, pre-law students have often chosen from among the following courses: Management Sciences 100; Economics 51, 52; English 55, 56; History 21-22 or 51, 52, 91 and 92, 105, 106; Philosophy 41 and 48; Political Science 61; Sociology 91; Engineering 169, 170.

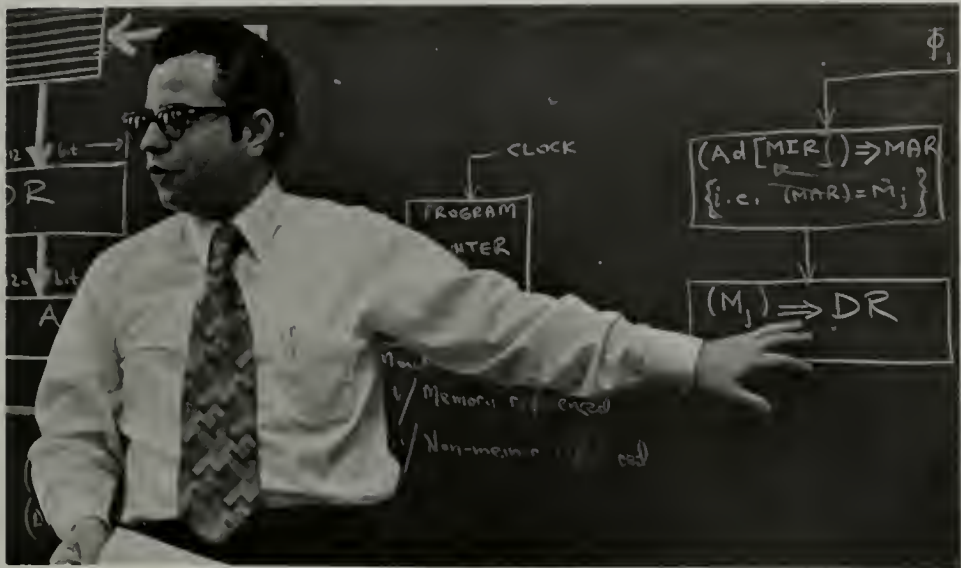
For a fuller discussion of undergraduate preparation for the study of law, students should refer to the *Bulletin of the School of Law*.

Theological Schools and Religious Work. The student contemplating theological study should correspond at the very earliest opportunity with the school or schools to which he intends to apply and with the authorities of his church in order to learn what will best prepare him for the specific program he expects to enter. He will be likely to find under the guidance of the seminary that he should consider the following subjects: English language and literature; history, including non-Western cultures as well as European and American; philosophy, particularly its history and its methods; natural sciences, both the physical and the life sciences; social sciences, where psychology, sociology, and anthropology are particularly appropriate; the fine arts and music, especially for their creative and symbolic values; Biblical and modern languages; religion, both in the Judaeo-Christian and in the Near and Far Eastern traditions. Some seminaries require Greek or Hebrew for admission, and many advanced Biblical courses are offered in the original tongues; modern languages have a less direct but immensely educative role and are required at the graduate studies level. It is the understanding gained in these fields rather than the total of credits or semester hours earned which is significant.

The School of Engineering

Duke University offers in the School of Engineering programs of study which lead to the degree of Bachelor of Science in Engineering (B.S.E.), with majors in the Departments of Biomedical, Civil, Electrical, and Mechanical Engineering. Special programs of study in interdisciplinary fields (see page





23) leading to the B.S.E. degree may be arranged with approval of the engineering faculty. The four curricula in the engineering departments are accredited by the Engineers' Council for Professional Development.

For graduation with a Bachelor of Science in Engineering degree, a student must complete successfully a minimum of 32 semester-courses. These 32 semester-courses must include the following:

General Requirements

- | | | |
|--------------------------------|--------------|---|
| English | 1 s.c. | This requirement is met by completing English 1. |
| Mathematics | 4 s.c. | This requirement is met by completion of Mathematics 31, 32, 103, and 104 or 111. |
| Natural Science | 3 s.c. | This requirement is met by completing Chemistry 11 and Physics 51 and 52. |
| Social Sciences and Humanities | 4 s.c. | This requirement is met by completion of 4 courses from at least two departments in the humanities and social sciences. This program of courses should reflect a rationale or fulfill an objective appropriate to the engineering profession. Courses selected must be those which present essential subject matter and substance of the discipline; for example, no introductory skill courses may be used to satisfy this requirement. Likewise, courses devoted primarily to subjects such as accounting, industrial management, finance, personnel administration, introductory language, and ROTC normally do not fulfill this objective regardless of their general value in the total engineering curriculum. House courses may not be used to satisfy this requirement. |

Engineering and Applied Sciences . . . 3 s.c. This requirement is met by completion of at least 1 course from each of three of the following four areas: electrical science, materials science, mechanics, and thermal science. See departmental requirements, which follow, for any specific courses to be included.

Digital Computation Students are expected to have acquired a digital-computer programming capability before their sophomore year. The programming capability may be satisfied by prior experience or by passing Engineering 31, Mechanical Engineering 31, or Computer Science 51.

Departmental Requirements

Departmental Specifications . . . 17 s.c. The department administering the major field of study will specify the nature of this requirement. In general it will consist of both required courses and electives to be planned in consultation with the departmental adviser. See the individual departmental requirements, which follow.

*Total Minimum Requirement . . 32 s.c.

*A maximum of 2 semester-courses of junior or senior level air science or naval science course work may be counted in satisfying the minimum requirements of 32 semester-courses for a baccalaureate degree in engineering. These courses must be included in the 17 semester-courses listed under departmental requirements. All other courses completed in air science or naval science are taken in addition to the minimum program.

Program of Studies for the Freshman Year

First Semester	Courses	Second Semester	Courses
Chem. 11—Principles of Chemistry	1	Physics 51—General Physics	1
English 1—Freshman Composition	1	Math. 32—Introductory Calculus I	1
Math. 31—Introductory Calculus I	1	Elective†	1
Elective†	1	Elective†	1
	4†		4†

†Each student is encouraged to plan a program designed for his individual needs. His faculty adviser will be available to assist him beginning with the opening of Freshman Week. Advice should be sought relative to the most effective use of electives in relation to the special requirements of the various engineering majors.

It should be noted that students are expected to have acquired a digital-computer programming capability before their sophomore year.

‡The normal load each semester is 4 courses (or an equivalent combination of courses). This is the minimum program ordinarily permitted. Engineering students taking air science or naval science may need to schedule a course in military science as a supplement to the normal load.

Biomedical Engineering Departmental Requirements

The general requirements and departmental requirements are all incorporated in the following sequence. This is only one of several possible sequences. The student is encouraged to choose electives and select a sequence which serves mature educational needs.



Freshman Year

First Semester	Courses	Second Semester	Courses
Chem. 11—Principles of Chemistry	..... 1	Chem. 12—Principles of Chemistry	..... 1
English 1—Freshman Composition	..... 1	Biology 14—Introduction to Biology	.... 1
Math. 31—Introductory Calculus 1	..... 1	Math. 32—Introductory Calculus I	..... 1
Computer Science 51—Introduction to Digital Computation	..... $\frac{1}{4}$	Social Science or Humanities Elective	.. 1
			<hr style="width: 100%; border: 0.5px solid black;"/> 4

Sophomore Year

First Semester	Courses	Second Semester	Courses
Physics 51—General Physics	..... 1	Physics 52—General Physics	..... 1
B.M.E. 71—Discrete-Systems Analysis	..... 1	E.E. 63—Electric Networks	..... 1
Math. 103—Interm. Calculus	..... 1	Math. 111—Applied Math. Analysis	.... 1
Zoology 151—Principles of Physiology	..... $\frac{1}{4}$	Social Science or Humanities Elective	.. 1
			<hr style="width: 100%; border: 0.5px solid black;"/> 4

Junior Year

First Semester	Courses	Second Semester	Courses
Engineering Elective	..... 1	B.M.E. 164—Biomedical Electronics and Measurements II	..... 1
B.M.E. 163—Biomed. Electronics and Measurements I	..... 1	B.M.E. 172—Biomedical Transfer Processes	..... 1
Engineering 122—Transport Phenomena	1	Math. Elective*	..... 1
Approved Elective	..... $\frac{1}{4}$	Social Science or Humanities Elective	.. $\frac{1}{4}$
			<hr style="width: 100%; border: 0.5px solid black;"/> 4

*Engineering 172 or Mathematics 135 is recommended.

Senior Year

First Semester	Courses	Second Semester	Courses
B.M.E. 181—Biomedical Modeling	1	Approved Elective	1
Approved Elective	1	Approved Elective	1
Approved Elective	1	Social Science or Humanities Elective ..	1
Social Science or Humanities Elective ..	<u>1</u>		<u>4</u>
	4		4

Civil Engineering Departmental Requirements

The general requirements and the departmental requirements are all incorporated in the following typical program.

Freshman Year

First Semester	Courses	Second Semester	Courses
Chem. 11—Principles of Chem.	1	†C.E. 16—Surveying for Engineers	½
English 1—Freshman Composition	1	†Egr. 11—Engineering Graphics	½
Math. 31—Intro. Calculus	1	Phys. 51—General Physics	1
Engineering 31—Computers in Engineering	<u>1</u>	Math. 32—Intro. Calculus	1
	4	*Approved Elective	<u>1</u>
			4

Sophomore Year

First Semester	Courses	Second Semester	Courses
Engineering 75—Mechanics of Solids ...	1	Engineering 83—Structure and Properties of Solids	1
Math. 103—Interm. Calculus	1	Engineering 123—Dynamics	1
Phys. 52—General Physics	1	Math. 104—Linear Algebra or Math. 111—Applied Math. Analysis I	1
*Approved Elective	<u>1</u>	*Approved Elective	<u>1</u>
	4		4

Junior Year

First Semester	Courses	Second Semester	Courses
C.E. 131—Structural Analysis I	1	C.E. 123—Water Resources Engineering	1
Engineering 145—Fluid Mechanics	1	C.E. 133—Structural Design I	1
*Engineering Science Elective	1	C.E. 139—Soil Mechanics	1
*Approved Elective	<u>1</u>	*Approved Elective	<u>1</u>
	4		4

Senior Year

First Semester	Courses	Second Semester	Courses
C.E. 124—Environmental Egr.	1	C.E. 116—Transportation Egr.	1
C.E. 134—Structural Design II	1	*Approved Elective	1
*Approved Elective	1	*Approved Elective	1
*Approved Elective	<u>1</u>	*Approved Elective	<u>1</u>
	4		4

*Electrical Engineering 63, Engineering 72, or Engineering 104.

†May be taken in the fall or spring of the freshman or sophomore year.

*Part of a program of elective courses planned with departmental approval to suit the interests and abilities of the individual student. In addition to satisfying the social science-humanities requirement of the School of Engineering, the program must include a minimum of one elective course in natural science. The program should also include a minimum of three emphasis electives which are designed to reinforce the student's major area of study. One emphasis elective must be a civil engineering course.

Electrical Engineering Departmental Requirements*

Mathematics	1 s.c.	Mathematics elective beyond Math. 104 or 111.
Basic Science	1 s.c.	Basic science elective (in addition to 3 s.c. in natural science listed under general requirements.).
Social Sciences and Humanities	2 s.c.	Social sciences-humanities elective (in addition to 4 s.c. listed under general requirements).
Courses in Major	1 s.c.	E.E. 113—Introductory Systems Theory.
	1 s.c.	E.E. 143—Fields and Continua.
	4 s.c.	E.E. electives at the 100-level or above.
Approved Electives	1 s.c.	Must be an engineering science course taught within the School of Engineering.
Approved Electives	2 s.c.	Must be in engineering science, physical science, computer science, or mathematics.
Approved Electives	4 s.c.	
Other courses	15 s.c.	Listed under general requirements.

*One of the 3 courses in engineering and applied sciences as listed under general requirements must be Electrical Engineering 63.



Mechanical Engineering Departmental Requirements

The general requirements and departmental requirements are all incorporated in the following typical program.

Freshman Year

First Semester	Courses	Second Semester	Courses
Chem. 11—Principles of Chem.	1	*Engineering Science Elective	1
Engineering 31—Computers in Engineering	1	Math. 32—Introductory Calculus	1
Eng. 1—Freshman Composition	1	Physics 51—General Physics	1
Math. 31—Introductory Calculus	<u>1</u>	†Approved Elective	<u>1</u>
	4		4

Sophomore Year

First Semester	Courses	Second Semester	Courses
*Engineering Science Elective	1	*Engineering Science Elective	1
Math. 103—Linear Algebra and Intermed. Math. Analysis	1	Math. 111—Applied Math. Analysis I	1
Physics 52—General Physics.	1	†Approved Elective	1
†Approved Elective	<u>1</u>	†Approved Elective	<u>1</u>
	4		4

Junior Year

First Semester	Courses	Second Semester	Courses
M.E. 101—Thermodynamics	1	M.E. 136—Response of Systems	1
M.E. 123—Dynamics	1	*M.E. 150—Heat and Mass Transfer ...	1
*M.E. 126—Fluid Mechanics	1	†Approved Elective	1
†Approved Elective	<u>1</u>	†Approved Elective	<u>1</u>
	4		4

Senior Year

First Semester	Courses	Second Semester	Courses
M.E. 141—Mechanical Design I	1	§Advanced Technical Elective	1
§Advanced Technical Elective	1	§Advanced Technical Elective	1
§Advanced Technical Elective	1	†Approved Elective	1
†Approved Elective	<u>1</u>	†Approved Elective	<u>1</u>
	4		4

*The 3 courses in engineering sciences must be Engineering 72, 75, and 83.

†Part of a program of elective courses planned with departmental approval to suit the interests and abilities of the individual student. Included in these approved electives must be 5 social science-humanities courses, 1 elective course in natural science, and Math. 104 or a mathematics course beyond Math. 111.

‡Students specializing in materials science may substitute both M.E. 111 and Engineering 122 for M.E. 126 and M.E. 150.

§The advanced technical electives should be chosen to emphasize a professional objective in the curriculum.

Double Major. If an engineering student satisfies the requirements of a departmental major in arts and sciences simultaneously with satisfying the requirements for a B.S.E. degree, or satisfies simultaneously the requirements for two engineering majors, his official record will indicate this fact. However, the director of undergraduate studies for the second major must certify that its departmental major requirements have been met and the student must initiate the procedure, either through the Dean of the School of Engineering or

through the director of undergraduate studies in his department, and the major requirements of the second department must be confirmed no later than the time of registration for the final semester.

Courses which are common to both majors shall be counted toward satisfying the requirements of both majors.

Interdisciplinary Programs in Engineering. This major parallels the majors in biomedical, civil, electrical, and mechanical engineering. It provides for special programs of study in interdisciplinary fields, such as energy conversion, engineering mechanics, materials science, ocean engineering, pollution control, systems and controls, and urban engineering, leading to the B.S.E. degree, which may be arranged with approval of the engineering faculty. Any student, in consultation with his adviser or another faculty member, may propose a unique combination of courses designed to meet his particular career objectives. His proposal should be submitted to the Engineering Faculty Council, through the Dean of the School of Engineering, for approval; it may be submitted as early as the second semester of the freshman year and must be submitted before the beginning of the senior year. The proposal should include the student's reasons for pursuing the suggested program of study, and it must show how the proposed courses satisfy the following requirements:

1. The proposed program of study meets the general requirements for the B.S.E. degree but cannot be accommodated by the approved departmental requirements in biomedical, civil, electrical, or mechanical engineering.
2. A program of at least 8 engineering courses is included to provide depth in the selected interdisciplinary area of study.
3. A program of at least 5 courses, in addition to the 15 courses listed under general requirements, is included to provide breadth in technical (engineering, natural science, and mathematics) areas.
4. The remaining courses, which are treated as electives, require the approval of the student's adviser.

Each student enrolled in an approved interdisciplinary program will be assigned to the appropriate engineering department for administrative purposes.

Program in Engineering and Public Policy. Engineering students may pursue a program of study leading to the degree of Bachelor of Science in Engineering, with a major in one of the five engineering fields of study and a second major in public policy studies. The program is sponsored by the School of Engineering and the Institute of Policy Sciences and Public Affairs. In order to qualify for a degree with this second major, a student must satisfy the requirements for one of the five engineering majors at Duke University and a series of courses, which may be characterized as electives within the engineering curriculum, that meet the requirements for the major in public policy studies. These requirements are a modified parallel of the requirements of the major in public policy studies as described in Chapter 8.

Residence Requirements. At least 16 semester-courses must be completed satisfactorily at Duke. This must include the work of the final two semesters with the following exceptions: the student who has completed more than four full semesters of work at Duke may take the last 2 courses elsewhere; others may take 1 last course elsewhere. The courses taken elsewhere must be approved by the student's major adviser and his academic dean.

Pass/Fail Grading Option. With the consent of the instructor and the faculty adviser, an engineering student may choose to be graded on a pass/fail basis in up to four unrestricted electives or social sciences-humanities electives within the 32-course program. A student may take no more than 1 course on a pass/fail basis per semester.

Continuation Requirements. A student must achieve a satisfactory record of academic performance each semester and make satisfactory progress toward graduation to continue his enrollment in the University.

A student must pass at least 3 courses in each semester, except for the first semester of the freshman year when at least 2 courses must be passed. A student who fails to meet this continuation requirement must leave the University for at least two semesters. A complete summer session may be counted as a semester. Following a student's application for readmission, his return must be approved by the dean and the director of undergraduate studies in his major department. If the student thereafter fails to pass 3 courses in a semester, he ordinarily will be permanently dismissed from the University. A student who enrolls in more than 4 courses in a given semester and fails 2 or more of them will not be permitted to enroll for more than 4 courses in the following semester without approval of the dean. In addition, a student may be dismissed temporarily or permanently for failing to make satisfactory progress toward graduation, including satisfactory progress toward fulfillment of curricular requirements within ten semesters.

The term *satisfactory progress* shall be defined also by the following schedule:

Semesters completed	Minimum number of semester-courses passed	Minimum number of semester-courses passed with C- or better, or P
2	6	2
4	12	8
6	18	14
8	24	20

Grade Requirements for Graduation. Of the 32 semester-courses required for graduation, 28 or their equivalent in number, must be passed with grades of C- or better.

The School of Nursing

The baccalaureate program is designed to produce a professional nurse who:

1. comprehends and appreciates man's opportunities, responsibilities, and relationships in a dynamic environment,
2. develops knowledge, comprehension, and skills essential to the process of nursing,
3. develops knowledge and comprehension of a professional role within a social, biological, and cultural framework, and
4. develops a foundation for potential social sensitivity and the desire for continuous self-development and fulfillment.

The overall goal of the curriculum is to prepare graduates to assume effectively responsibilities as professional nurses and liberally educated individuals. The course of study with its flexible approach prepares practitioners to begin to function as professionals in nursing services for individuals, families, and communities.

The curriculum provides a base for professional growth; the knowledge, skills, and appreciations characteristic of those with a liberal education; and a foundation for graduate study. Studies in the freshman and sophomore years are devoted primarily to the liberal arts and basic sciences; during these years, cocurricular activities are provided to introduce the students to nursing. The focus of the junior and senior years is the nursing major. Transfer students can be readily accommodated in a curriculum of this design.

The students are seen as aggressive, active participants in making decisions about their own learning needs and interests. They are enabled and encouraged to plan a program of study compatible with their background and interests which will contribute to their personal and professional goals. With the guidance of academic advisers, students may elect courses and experiences which best serve their interests for concentration on an area of study or for exploration in several fields. Teaching techniques take into consideration the spontaneity, potential, and individuality of the student.

The distinctive features of the curriculum are:

1. Although every student acquires a base in the natural and social sciences and humanities, students may choose to develop a second major in any of these three areas.

2. The conceptual framework of the curriculum is the nursing process. Students augment, complement, and integrate social, biological and psychological theories and experiences as they use the nursing process in the care of individuals in the need of health care.

3. Through courses comprising the professional nursing component, opportunities are provided for the student to progress in uniting knowledge and decision-making with nursing action concerning individuals, groups, and families whether they be hospitalized or in the community.

4. Nursing electives and independent study in the upper division permit students to pursue individual interests, to broaden their scope of nursing, and to gain a degree of proficiency in the type of initial professional practice in which they wish to engage after graduation.

5. The curriculum is theoretically oriented in the belief that students who learn to select facts and theories from relevant disciplines for application to nursing practice will be able to adapt readily to changing modalities of health care.

Program of Study. For graduation with a Bachelor of Science in Nursing degree a minimum of 32 semester-courses plus 2 courses in physical education activity must be completed successfully. The courses are divided into lower and upper divisions with 12 upper division courses in nursing required for the nursing major.

Lower Division

Natural Science	2 s.c.*	In sequence.† May select from chemistry, botany, zoology, physics, geology, or biology.
Human Ecology I, II	2 s.c.	N97, N98
Statistics	1 s.c.	Any introductory course offered by Departments of Mathematics, Psychology, or Economics.
Social Sciences	3 s.c.	One course must be in psychology and the other two may be: <ul style="list-style-type: none"> a. one in psychology and one in sociology or anthropology

*Semester-course(s).

†Exception is made to the "in sequence" requirement if the student takes Biology 14, which is only 1 course. In this case the student must select another botany or zoology course to complete the requirement.

		b. two in sociology c. two in anthropology d. one in sociology and one in anthropology.
Humanities	1 s.c.	No skill courses satisfy this requirement. (See page 9.)
English Composition	1 s.c.	English 1 (See page 9.)
Electives	6 or 7 s.c.	
Physical Activity	2 s.c.	No credit (See page 11.)

Students must satisfy the small-group learning experience requirements, during the first two years, as outlined for students in the arts and sciences on page 8.

Upper Division

Theoretic and Scientific Bases for Nursing Practice	2 s.c.
Development of Nursing Skills and Attitudes	4 s.c.
Distributive and Episodic Nursing Practice	4 s.c.
Functional Aspects of Nursing Practice	1 s.c.
Required Independent Study	1 s.c.
Electives (includes optional independent study)	4 s.c.

A student desiring to complete requirements for a second major in a department of arts and sciences may do so and have both majors entered on the official record. (See page 33.)

Continuation Requirements. A student must achieve a satisfactory record of academic performance each semester and make satisfactory progress toward graduation to continue his enrollment in the School of Nursing. A student who fails to meet the minimum requirements outlined below must leave the University for at least two semesters. A summer may be counted as a semester. Following a student's application for readmission, his return must be approved by the Dean of the School of Nursing. A student who is readmitted after having withdrawn voluntarily or involuntarily for academic reasons must make no grade lower than "C-" during the first semester in order to continue in school.

Satisfactory Performance Each Semester. To remain in the School of Nursing, a student must not fail 3 or more courses in the first semester of the freshman year or fail 2 or more courses in any subsequent semester. An exception to this policy applies when a student fails a required nursing course worth 2 courses.

Satisfactory Progress toward Graduation. A student must pass in the approved nursing curriculum at Duke the following number of semester-courses (or their equivalent in half-courses or double-courses) to continue from one academic year to a subsequent year. (Summer terms at Duke may be used to meet this requirement.)

To begin enrollment in a	a student must have passed
second year	6 semester-courses
third year	14 semester-courses
fourth year	22 semester-courses
fifth year	28 semester-courses

Students are reminded that in cases where continuation is in question, incomplete work in any course is counted as a failure to achieve satisfactory performance in that course. Such courses must be completed in time for final grades to be submitted to the Registrar no later than the day preceding the opening of the spring semester or June 15 in the summer. In the case of incomplete work in the spring semester, this requirement applies whether or not the student plans to attend one or more terms of summer session.

Any student excluded from the School of Nursing under the provisions of this regulation may at his request have his case reviewed by the Undergraduate Studies Committee of the School of Nursing.

A minimum of 14 courses must be passed before a student can proceed to the upper division professional curriculum. Twelve of these courses must have been passed with a grade of C- or better. With the exception of transfer students, all lower division requirements must be met before entry to the upper division.

Requirements for Degree. To be graduated a student must pass a total of 32 courses (or an equivalent combination of courses, half-courses, and double-courses), including courses in the approved curriculum. 14 courses must be passed at the advanced level. Of the 32 courses required for graduation, no more than 2 courses with D grades will be accepted. Only required and elective nursing courses with a grade of C- or better will be accepted toward graduation. It is required that for graduation the student have an overall C average or better in nursing courses.

Satisfactory completion of one year of physical activity is required for graduation unless a student is excused for medical reasons. This requirement can be met by satisfactory completion of one year in appropriate physical education courses or by an alternate form of physical activity approved by the appropriate physical education department. Pass/fail grades are assigned for performance in required physical education courses and for alternate forms of physical activity. Physical education courses or alternate forms of physical activity do not count among the 32 courses needed for graduation.

Residence Requirements. The requirements for the normal and maximum period of residence for students enrolled in the School of Nursing are the same as for those in Trinity College of Arts and Sciences (see page 11). However, the minimum time that any student may spend in residence (full-time study) at Duke before receiving a Bachelor of Science in Nursing degree is one year unless the student is a registered nurse completing the requirements for a B.S.N. degree. For these students full-time and part-time study are possible.

Transportation Required. The use of facilities other than Duke and Veterans Administration Hospitals requires transportation. It is the responsibility of each nursing student to provide transportation to and from the facilities selected for learning experiences in both the junior and senior years. While a few agencies may be within bicycling distance, most are not, and Durham's bus service is spaced at long intervals. Thus, a car or arrangements to share in a car pool would be desirable.

Accreditation. In addition to the accreditation status accorded the University, the School of Nursing's undergraduate program is accredited by the National League for Nursing and the North Carolina Board of Nursing.



3

Academic Procedures and Information

Advanced Placement

Scores on the tests discussed below and documented previous educational experience are the criteria used to determine a student's qualifications for certain advanced courses.

CEEB Advanced Placement Program (APP) Examinations. Scores of 3, 4, or 5 on CEEB Advanced Placement Program Examinations are bases for consideration for credit and placement in advanced courses in art, botany, chemistry, English,* French, German, history, Latin, mathematics, music, physics, Spanish, and zoology. A student presenting such a score and desiring to continue in the same subject at Duke may request placement in an advanced course. In the case of French, German, Latin, and Spanish, APP scores of 3, 4, or 5 may result in placement in courses at the 100-level; approval of the director of undergraduate studies or supervisor of freshman instruction in the appropriate department is required before final placement is made. Credit may be granted for 1 or 2 courses in each subject area with the approval of the academic department concerned. A student who has earned a score of 3 must complete a specified course in that subject with a grade of C or better before credit is awarded. Pass/fail grading is not an option for such courses. Ordinarily, the validating course must be completed by the end of the sophomore year.

CEEB Achievement Tests. Scores on CEEB Achievement Tests are the basic criteria for placement in French, German, Italian, Spanish, Latin, and mathematics, and students who present a score of 700 or higher on the CEEB English Composition Achievement Test are excused from the course in English composition required for graduation. Course credit, however, is not given for courses bypassed. The following tables will assist students in making reasonable course selections in the subjects indicated.

*These scores, though admitting a student to advanced courses in literature, do not satisfy the requirement in composition. See section on CEEB Achievement Tests.

French		German		Italian	
CEEB Achievement Scores	Course Placement	CEEB Achievement Scores	Course Placement	CEEB Achievement Scores	Course Placement
200-390	French*	200-360	German 1*	200-390	Italian 1*
400-550	French 63	370-560	German 63	400-550	Italian 63
560 plus	French 101†	570 plus	Third year†	560 plus	Italian 101†

Spanish		Latin		Mathematics	
CEEB Achievement Scores	Course Placement	CEEB Achievement Scores	Course Placement	CEEB Achievement Scores	Course Placement
200-450	Spanish 1*	200-520	Latin 1*	Less than 530	Mathematics 19
460-600	Spanish 63	530-630	Latin 63	530-800	Mathematics 31
610 plus	Spanish 101†	640 plus	Third year†	760-800	Mathematics 31X upon request of the student

*The first year of a language may not be taken for credit by a student who has completed more than two years of that language in secondary school. In rare cases, an exception may be granted with permission of the director of undergraduate studies in the appropriate department.

†An exception may be granted in consultation with the director of undergraduate studies.

CEEB College Placement Tests. The CEEB Placement Tests in French, German, Italian, Latin, and Spanish should be taken during the orientation by (1) those students who desire to continue in the language but have not taken the CEEB Achievement Test, and by (2) those students who, having taken the CEEB Achievement Test, wish to challenge the score obtained on that test for the purpose of qualifying for a higher level language course. These tests are administered also at the end of each semester and at the close of the first term of the summer session for the convenience of those students who wish to demonstrate their foreign language proficiency by this means.

All freshmen who plan to take mathematics during their first semester at Duke, and who did not submit the CEEB SAT score or CEEB Achievement Test score in mathematics, must take the CEEB College Placement Test in mathematics during orientation. Students who have been placed in Mathematics 19 or 31 but believe their mathematics background justifies a higher course placement need not take the CEEB College Placement Test, but should consult the Director of Undergraduate Studies of the Department of Mathematics.

Course credit is not given for courses by-passed on the basis of the placement tests.

Placement in Russian. Students who wish to continue in Russian at Duke should see the Director of Undergraduate Studies in the Department of Slavic Languages and Literature. In the case of Russian, neither CEEB Achievement Test scores nor CEEB College Placement Test scores have been sufficiently validated to serve as criteria for placement. Therefore, the department offers an examination which is used in conjunction with other criteria for placing students at the appropriate course level.

Reading-Out of Introductory Courses. A student demonstrating academic ability may be granted the option of "reading-out" of an introductory or pre-

requisite course in order to allow him to advance at his own pace to upper-level work. No course credit may be earned by "reading-out." Any student interested in reading to bypass an introductory or prerequisite course must be recommended by his academic dean and secure the approval of the department concerned. Reading for a course and auditing are mutually exclusive procedures. A proposed program of reading should be approved by the appropriate director of undergraduate studies. On passing a qualifying examination prepared by the department, a student may be certified for advanced course work. On completion of an advanced course, an entry will be made on his permanent record that he passed the qualifying examination, but no course credit is awarded. Interested students may request further information from their academic dean's offices.

Placement in Nursing. Registered nurses wishing to complete requirements for the Bachelor of Science in Nursing degree or students wishing to transfer nursing courses from other schools of nursing should see the Director of Academic Programs of the School of Nursing. Examinations and other criteria are used to determine appropriate placement in the approved curriculum.

Transfer Credit. Credit of up to 16 semester-courses may be granted for course work satisfactorily completed at other accredited, degree-granting institutions. Courses in which grades of less than C- have been earned are not accepted for transfer credit. The semester-course credit unit awarded at Duke for satisfactorily completed courses cannot, of course, be directly equated with semester-hour or quarter-hour credits. A semester's work accepted as a normal course load by the other institution transfers as a block of 4 course credits at Duke, provided the courses taken at the other institution are acceptable by Duke. Ordinarily, a transfer student will not be awarded more than 4 course credits for one semester's work unless he has satisfactorily completed more than the normal course load at the institution from which he transfers. All courses approved for transfer are listed on the student's permanent record at Duke but grades earned in such courses are not recorded.

Courses taken at other institutions are evaluated by the University Registrar. Credit for courses in science, mathematics, and foreign language taken at a junior college may also be evaluated by the Duke departments concerned, as are some courses that have no Duke equivalents.

No credit is given for work completed by correspondence. Credit for no more than 2 semester-courses is allowed for extension courses.

Registration

Students are expected to register at specified times for each successive semester. Prior to registration each student receives special instructions and registration materials. He prepares a course program and presents it at an appointed time to his adviser for review. The approved schedule is then presented at registration.

Students who expect to teach in elementary or secondary schools should consult an adviser in the Department of Education prior to each registration period to ensure that they are meeting requirements for certification (many states have unique requirements) and that they will have places reserved in the student teaching program.

Those who register at a time later than the day specified in the University calendar are subject to a \$10.00 fine. Students who fail to register are withdrawn and must apply for readmission if they wish to return; they also forfeit their \$50.00 registration deposits unless they indicate at the time of registration their intention not to continue in the University the following semester.

Semester Opening. Students are expected to report to a designated office at the beginning of each semester to obtain a semester enrollment card. Any student who is unable to do so should notify his academic dean that he will be late in arriving. Failure to report, or to account beforehand for one's absence, entails a loss of registration in courses. Official enrollment is required for admission to any class.

During the first two weeks of classes, changes in the schedule for which a student is registered can be made. Course changes initiated by the student entail a fee of \$1.00 per change.

Course Changes After Classes Begin. In Trinity College of Arts and Sciences students may drop and add courses during the first week of classes at their discretion. During the second week, they may drop courses at their own discretion, but the signature of the appropriate instructor will be required for adding courses. Students are reminded that it is their responsibility to be certain that their course load conforms with the academic requirements. Within the School of Nursing and the School of Engineering the signature of the adviser is necessary for dropping or adding courses after classes begin.

With the approval of their academic dean, students carrying a course overload may drop a course without penalty until the time mid-semester grades are assigned. Courses discontinued at any time without approval, or withdrawal from any course after the mid-semester time limit has expired will ordinarily result in a grade of *F*. Factors such as poor health or compelling outside commitments are considered in permitting withdrawal from courses without penalty. A *W* is entered on the permanent record in lieu of a grade in all cases when withdrawal without penalty is approved.

Course Load and Eligibility for Courses

The normal and expected course load each semester is 4 semester-courses. To take fewer than 4 or more than 5 semester-courses in any semester, a student must have the approval of his academic dean. No student, however, may take more than 6 courses in any semester. With the approval of their academic dean, seniors who need fewer than 8 courses may take a 3-course load either semester.

The rules established by the Graduate School provide that juniors and well-qualified sophomores may enroll in a 200-level (senior-graduate) course if they have obtained the written consent of the instructor, as well as that of the director of graduate studies in the department concerned. Undergraduate students are not permitted to enroll in 300-level courses.

Seniors who at the beginning of a semester lack no more than 3 semester-courses for the fulfillment of the requirement for the Bachelor of Arts or Bachelor of Science degree may enroll in graduate courses for a maximum total program of 5 semester-courses. The permission of the Dean of the Graduate School is required.

Course Audit

With the written consent of the instructor, a full-time degree student is allowed to audit one or more courses in addition to the normal program. With the consent of the instructor and the Registrar, alumni may audit undergraduate courses at the usual auditing fee. After the first two weeks of classes in any semester, no student classified as an auditor in a particular course may take the course for credit, and no student taking a course for credit may change classification to an auditor. A student may not repeat for

credit any course he has audited. Auditors submit no daily work, take no examinations, and receive no credit for courses.

Independent Study

Independent study enables a student to pursue individual research and reading in a field of special interest subject to the supervision of a member of the faculty. (See page 10.) A student—with approval of his adviser, the instructor, and the director of undergraduate studies of the instructor's department—may enroll in independent study for any semester of his enrollment at Duke.

House Courses

House Courses are initiated and organized by students within given residential units. They are generally, but not necessarily, interdisciplinary in nature. If students are to earn credit for a course, it must be sponsored by a faculty member in the arts and sciences, acted upon by the department of that faculty member, and approved by the Committee on Courses of the Undergraduate Faculty Council. House Courses may carry half-course credit. They do not fulfill distributional requirements, and no more than 2 semester-course credits earned in House Courses may be counted toward the course requirement for graduation. Grades are submitted on a pass-fail basis. The Secretary of the Committee on Courses can provide further details.

Declaration of Major or Division

Each freshman must declare a division of interest (humanities, social sciences, or natural sciences)—or a major if he wishes—by registration in April of the freshman year, and all students must declare a major before mid-February of the sophomore year. When a student declares a major he must also identify his second and third divisions. The form for declaring a major or division is provided with the registration materials and is also available from academic deans.

An interdepartmental concentration may be declared after the student confers with the directors of undergraduate studies of the departments to be involved, and they or other advisers assist him in preparing a program of course work. The program must consist of at least 3 courses beyond the introductory level in each of the departments. An interdepartmental concentration must be planned early in the undergraduate career. One of the departments should be identified as primarily responsible for the student's advising. A copy of the plan for the program, with a descriptive title which will appear on the student's permanent record, should be presented along with the written approval of the directors of undergraduate studies to the appropriate academic dean. Students who declare interdepartmental concentrations must identify the second and third divisions and satisfy those requirements and all others for Program I.

A student may declare a second major to be recorded on his permanent record. A second major should be declared in the office of his academic dean before a student registers for his final semester.

Changes in departmental majors or interdepartmental concentrations must be registered in the office of the student's academic dean.

After a student declares a major he is assigned an adviser in the department of his major and an academic dean in the division of his interest. Fresh-

men who do not declare a major, but rather a division, are advised by the academic dean in the division.

Class Attendance and Excused Absences

Responsibility for class attendance rests with the individual student. He is expected to attend classes regularly and punctually and must accept the consequences of failure to attend. An instructor is privileged to refer to the student's academic dean a student who in his opinion is absent excessively. Absences from required classes and tests ordinarily are excused only for illnesses certified by a proper medical official of the University, and for authorized representation of the University in out-of-town events. Officials in charge of groups representing the University are required to submit names of students to be excused to the appropriate dean's office forty-eight hours before absences are to begin.

Final Examinations and Excused Absences

Unless departmental policy stipulates otherwise, the conduct of the final exercise is determined by the instructor. However, a final written examination may not exceed three hours in length and a final "take-home" examination may not require more than three hours in the actual writing. "Take-home" examinations are due at the regularly scheduled hour of an examination based on the time period of the class. The times and places of final examinations are officially scheduled by the University Schedule Committee, generally according to the day and hour at which the course regularly meets. No changes may be made in the schedule without the approval of the Committee.

If a student is absent from a final examination, he receives an *X* instead of a final grade. He must present an acceptable explanation for his absence to the appropriate academic dean's office within forty-eight hours after the scheduled time of the examination or the *X* is converted to an *F*. If the absence is excused by a dean, the student arranges with the dean and the instructor for a make-up examination at the earliest possible time. An *X*, not cleared by the end of the semester following the examination missed, is converted to an *F*.

Grading and Grade Requirements

Final grades on performance in academic work are sent to students and parents, or guardians, after the examinations at the end of the fall semester. At the close of the spring semester, grades are mailed to the student's home address. Mid-semester advisory grade reports for freshman are issued each semester.

Passing Grades. Passing grades are *A*, exceptional; *B*, superior; *C*, satisfactory; *P*, passing (see pass/fail option below); and *D*, low pass; these grades may be modified by a plus or minus. A *Z* may be assigned for the satisfactory completion of the first semester of a two-course sequence, and the final grade for both courses is assigned at the end of the second course of the sequence.

Although the *D* grade represents low pass, no more than two courses passed with *D* grades may be counted among the 32 courses required for graduation. Courses for which a *D* grade is earned, however, satisfy distributional requirements.

Failing Grades. A grade of *F* or *U* (see pass/fail option below) indicates that the student has failed the course. The grade is recorded on the student's

record. If he registers for the course again, a second entry of the course and the new grade earned are made on the record, but the first entry is not removed.

Pass/Fail Grading Option. With the consent of the instructor and faculty adviser, a student who has declared a major may choose to be graded on a pass/fail basis in one elective, non-major course each semester or summer term. In addition, with the consent of the instructor, adviser, and director of undergraduate studies, a student may take for pass/fail credit courses in independent study or internship in any department including that of his major. Certain courses are offered only on a pass/fail basis. Unless a course is offered only on a pass/fail basis, a course passed under the pass/fail option does not apply to distributional requirements.

After the first two weeks of classes in any semester, no student may change his status to or from a pass/fail basis. A pass grade may not be subsequently be converted to a regular letter grade nor may the course be retaken on a regular credit basis.

Grades When Absent from Final Examination. (See Final Examinations and Excused Absences on page 34.)

Grades for Incomplete Work. If because of illness or other emergency a student's work in a course is incomplete, he may receive an *I* for the course instead of a final grade. Incomplete courses must be completed before the close of the succeeding semester; otherwise, the *I* is converted to an *F*. Seniors are expected to complete all courses before graduation. In case a student whose work is incomplete is also absent from the final examination, he receives an *X* for the course. For the purposes of determining if a student satisfies continuation requirements, an *I* is counted as failing to achieve satisfactory performance in that course.

Commencement

Degrees are awarded in May at commencement exercises to those who have completed requirements at the end of either regular semester of the academic year. Those who complete degree requirements at the end of a summer term become eligible to receive diplomas dated September 1, but no commencement exercises are held for such graduates, and the diplomas are mailed in December, after final approval by the University faculty and Trustees.

Academic Honors

To determine eligibility for academic honors, only grades earned at Duke enter into the calculation of the average.

Dean's List. In recognition of superior academic achievement, freshmen, sophomores, and juniors who carry a normal academic load and earn a *B* average or higher in the two semesters of an academic year are placed on the Dean's List if the following additional requirements are met:

1. Grades other than *P* have been earned in 6 semester-courses.
2. No incomplete or failing grade has been received within the academic year.

Class Honors. Students in the freshman, sophomore, and junior year who carry a normal academic load and earn a *B+* average on all work for the year are eligible for Class Honors provided the following conditions are also met:

1. Grades other than *P* have been earned in 6 semester-courses.

2. No incomplete or failing grade has been received within the academic year.

Graduation Honors. Students who earn the following averages for all work taken at Duke are graduated with honors: *B* average, *cum laude*; *B+* average, *magna cum laude*; and *A-* or above, *summa cum laude*.

Graduation With Distinction. Most of the academic departments offer programs for Graduation with Distinction for students in Programs I and II and in all engineering programs. To be eligible, students must show promise of achieving by the time of graduation at least a *B* average in the major field. Departments or interdepartmental honors committees may invite a student at the end of the sophomore or junior year to enter the Graduation with Distinction Program. After participation in a seminar in the junior or senior year, and/or a directed course of reading, laboratory research, or other independent study, the student must present the results of his individual research and study in a distinguished piece of writing. The student's achievement, including the paper, is assessed by a faculty committee, and if the student has at least a *B* average in the major field, the committee may recommend that the student be graduated with distinction in his major field. A student engaged in an interdisciplinary program must attain an overall *B* average for his courses taken in the departmental areas of his concentration or special study; his achievement is assessed by an interdepartmental honors committee established by the directors of undergraduate studies in the departments concerned. An interested student should consult the director of undergraduate studies in his department.

Other Honors. Election to the freshmen honorary societies, Ivy and Phi Eta Sigma, of students who earn a *B+* average is made at the end of the first semester and also at the end of the freshman year. The requirements are the same as those for class honors.

Elections to the national honorary society Phi Beta Kappa are held in the fall and spring; seniors are elected at both times, juniors in the spring only. Additional elections, chiefly of transfer students and doctoral students, are held in the fall following the students' graduation or the award of the Ph.D. Eligibility for election is determined not by the University but by the local chapter of the Society. Eligibility is based on good character and superior academic achievement. Seniors are normally considered upon the completion of six or seven semesters of work (or the equivalent), to no less than four-fifths of which letter grades have been awarded at Duke. Juniors are considered upon the completion of five semesters of exceptionally meritorious work. The total number elected usually does not exceed 8 percent of the graduating class. Inquiries may be directed to the Secretary of Phi Beta Kappa, Box 4795 Duke Station, Durham, North Carolina 27706.

Several prestigious fellowships for graduate study are open to applicants from Duke University. Students are selected competitively. Any student interested in these opportunities should consult the academic dean in charge of fellowships.

Prizes and Awards

The achievements of undergraduate students are recognized in various fields of college activity. The following prizes suggest the range of the recognition.

The Robert E. Lee Prize. This prize is the gift of the late Reverend A.W. Plyler, of the Class of 1892, and Mrs. Plyler. The sum of \$50 is awarded annually at Commencement to the man in the senior class of Trinity College of Arts and Sciences or the School of Engineering who, in character and con-

duct, scholarship, athletic achievement, and a capacity for leadership, has most nearly realized the standards of the ideal student.

Julia Dale Prize in Mathematics. This is an annual cash prize of at least \$50. The winner is selected by the Department of Mathematics on the basis of excellence in mathematics. In some years first and second prizes are given.

The Henry Schuman Music Prize. This prize of \$100 is awarded annually to an undergraduate of Duke University for an original composition of chamber music or a distinguished paper in music history or analysis. The award is sponsored by Trinity College of Arts and Sciences and the Department of Music at Duke University through a continuing gift from Dr. and Mrs. James H. Semans who named the prize after Mr. Henry Schuman, a life-long friend of the Semans and Trent families, a talented amateur violinist, and one who helped to build valued collections in the Duke Library.

The Phi Lambda Upsilon Prize. Phi Lambda Upsilon, honorary chemical society, yearly awards a suitable prize to an outstanding junior who is majoring in chemistry. The recipient's name is inscribed on a plaque displayed in the Chemistry Library.

The Chemistry Department Award. This prize recognizes outstanding scholarship in chemistry and is awarded at graduation to the B.S. major in chemistry with the best academic record in his class. The prize is a one-year subscription to the *Journal of Chemical Education*. In case of a tie, equal awards are given.

The James B. Rast Memorial Award in Comparative Anatomy. This award is given annually by the parents of James Brailsford Rast in memory of their son, a member of the class of 1958 at Duke University. The award, consisting of the *Atlas of Descriptive Human Anatomy* by Sobotta and bearing the James B. Rast Memorial bookplate, is given to the student who demonstrates the greatest achievement in the study of comparative anatomy.

A. J. Fletcher Scholarships. These Music Department scholarships are given to students who can demonstrate, by tape or audition, talent and achievement in instrumental or vocal performance. These awards range between \$500 and \$1,200 per annum, depending on need, and are renewable yearly for up to four years. Although recipients are not required to major in music, they are expected to study privately and to participate in departmental performing groups.

The Winfred Quinton Holton Prize in Primary Education. This prize was established in 1922 by gifts of Holland Holton, '07, and Mrs. Lela Young Holton, '07, in memory of their son, Winfred Quinton Holton, with the income to be used to provide a prize for investigative work in primary education. This prize of approximately \$175 may be made annually. Competition is open to Duke seniors and graduate students who are candidates for a degree in elementary education. A student who wishes to be considered for the prize must submit a paper to be judged by a faculty committee in the Department of Education. The student must first secure a faculty supervisor, and only scholarly papers which the student and faculty supervisor deem appropriate for publication should be submitted. Papers must be submitted by April 1 for consideration in a particular year.

The Anne Flexner Memorial Award in Creative Writing. This award has been established by the family and friends of Anne Flexner, who graduated from Duke in 1945. It consists of \$150.00 (first prize), \$100.00 (second prize), and \$50.00 (third prize). The awards are given annually for the best pieces of creative writing submitted by Duke undergraduates. The competition is

limited to short stories (7500-word limit), one-act plays (7500-word limit), poems (200-line limit), and informational essays (5000-word limit). Only one manuscript may be submitted by a candidate, and it must be delivered to the English Office, Room 325 Allen Building, by March 15.

The William Senhauser Prize. This prize is given by the mother of William Senhauser in memory of her son, a member of the Class of 1942, who lost his life in the Pacific Theatre of War on August 4, 1944. The award is made annually to the student in Trinity College of Arts and Sciences or the School of Engineering who has made the greatest contribution through participation and leadership in intramural sports. The winner of this prize is chosen by a committee appointed by the President of the University.

The Roger Alan Opel Memorial Scholarship. A grant of \$500 or more is awarded annually to a Duke student who will spend an undergraduate year of academic study at the University of Exeter, England. The student is selected on the basis of intellectual curiosity, academic ability, and financial need. The award was established by the parents of Roger Alan Opel, a senior at Duke University who was killed in November, 1971.

The William T. Laprade Prize in History. This prize is offered in honor of William T. Laprade, who was a member of the Department of History at Trinity College and Duke University from 1909 to 1953, and Chairman of the Department from 1938 to 1952. It is awarded to that senior who is graduating with distinction and whose senior essay in history has been judged unusually meritorious.

The Edward C. Horn Memorial Prize for Excellence in Zoology. This prize is given each year to the graduating zoology major who, in the opinion of the zoology faculty, shows the highest level of academic achievement and



promise. It is offered in memory of Professor Edward C. Horn as a tribute to his warm regard for students and faculty and his appreciation of scholarly excellence. The prize consists of books appropriate to the student's field of interest.

The James A. Oliver Memorial Award. This award was established in 1963 by the family of James A. Oliver and is given to the student or students who have done the most to further the interest of music at Duke University. A prize of up to \$150.00 is awarded annually.

The Tau Beta Pi Prize. This prize is awarded each year by North Carolina Gamma Chapter of Tau Beta Pi, engineering national honor society, to a sophomore student in engineering for outstanding scholastic achievement during the freshman year.

The Walter J. Seeley Scholastic Award. This award is presented annually by the Engineers' Student Government to that member of the graduating class of the School who has achieved the highest scholastic average in all subjects, and who has shown diligence in pursuit of an engineering education. The award was initiated to honor the spirit of academic excellence and professional diligence demonstrated by Dean Emeritus Walter J. Seeley. It is hoped that this award will serve as a symbol of the man and the ideals for which he stands. The name of the recipient is inscribed on a plaque displayed in the Engineering Building.

The American Society of Civil Engineers Prize. This prize is awarded annually by the North Carolina Chapter of the American Society of Civil Engineers to two outstanding seniors in civil engineering, upon recommendation of the faculty of the Civil Engineering Department. The basis for selection is the student's scholastic record, his contribution to the student chapter, and his participation in other college activities and organizations. The prize consists of a Certificate of Award and the payment of one year's dues in the American Society of Civil Engineers.

The American Public Works Association Prize. This prize is awarded annually by the North Carolina section to an outstanding senior in civil engineering upon the recommendation of the faculty of the Civil Engineering Department. The basis for selection is the student's scholastic record and his interest in a career in public works. The prize consists of a Certificate of Award, one year's payment of dues in the American Public Works Association, and a \$25 cash award.

The George Sherrerd III Memorial Award in Electrical Engineering. This award is presented annually to that senior student in electrical engineering who, in the opinion of the electrical engineering faculty, has attained the highest level of scholastic achievement in all subjects and simultaneously has rendered significant service to the School of Engineering and the University at large. The award was established in 1958 by the parents of George Sherrerd III, a graduate of the Class of 1955, to recognize outstanding undergraduate scholarship. The recipient receives a monetary award and his name is inscribed on a plaque displayed in the Engineering Building.

The Charles Ernest Seager Memorial Award. This award recognizes outstanding achievement in the annual Student Prize Paper Contest of the Duke branch of the Institute of Electrical and Electronics Engineers. The award, established in 1958 by the widow and friends of Charles Ernest Seager, a graduate of the Class of 1955, consists of inscribing the name of the contest winner on a plaque displayed in the Engineering Building.

The Milmow Prize. This prize is awarded annually to the student from North or South Carolina graduating in the Department of Electrical Engineering, who, in the opinion of the faculty of that department and, as shown by his

grades, has made the most progress in electrical engineering during his last year in school. The prize consists of a Certificate of Award and one year's payment of dues in the Institute of Electrical and Electronics Engineers for the membership year in which the honoree is awarded his baccalaureate degree.

The Raymond C. Gaugler Award in Materials Science and Engineering. This award is presented annually to the senior who has made the most progress at Duke in developing competence in materials science or materials engineering. The basis for selection is the student's scholastic record, research or design projects completed at Duke, and interest in a materials-related career. The award has been established by Patricia S. Pearsall in memory of her grandfather, Mr. Raymond C. Gaugler, who was President of the American Cyanamid Company prior to his death in 1952.

The American Society of Mechanical Engineers Award. This award is presented annually to a senior in mechanical engineering for his outstanding efforts and accomplishments in behalf of the American Society of Mechanical Engineers Student Section at Duke. The award consists of a Certificate of Recognition.

The T.C. Heyward Award. This award is given annually to the outstanding sophomore in mechanical engineering by Pi Tau Sigma. The award will normally consist of a handbook as well as a small cash award.

Duke University School of Nursing Alumnae Award. The Duke University School of Nursing Alumnae Award is presented to the student in the graduating class who has demonstrated outstanding leadership, scholarship, and nursing skill.

The Moseley Award. The Moseley Award of \$25.00 is given to the student in the senior class who has shown the most skill in the art of nursing throughout her program in the School of Nursing.

Outstanding Service Award. The Outstanding Service Award is presented to the student who has demonstrated outstanding service to the School of Nursing or community by having consistently shared knowledge and ability either as a member of a group or a leader of a group for the educational or cultural improvement and welfare of others.

Enrollment for the Duke Summer Session

Undergraduates of Duke University who plan to attend one or more terms of a Duke summer session or who plan to take a course in independent study during the summer should register, if possible, in the spring at the same time they register for the fall semester. Enrollment after the spring registration period may be initiated in the office of the appropriate academic dean. Undergraduates in universities or colleges outside of Duke University should apply directly to the Director of the Summer Session, Duke University, Durham, North Carolina 27706.

Distinctive features of summer session instruction are provided in the various conferences sponsored by several of the departments and by a program in marine biology offered at the Duke Marine Laboratory, Beaufort, North Carolina. See *Bulletin of the Summer Session*.

Changes in Status

Withdrawal and Readmission. A student who wishes to withdraw from college must give official notification to his academic dean. For a student who withdraws on his own initiative prior to the Thanksgiving recess in the

fall semester or prior to April 15 in the spring semester, a W is assigned in lieu of a regular grade for each course. After these dates an F grade is recorded unless withdrawal is caused by an emergency beyond the control of the student.

Applications for readmission are made to the appropriate school or college. Each application is reviewed by officers of the school or college to which the student applies and a decision is made on the basis of the applicant's previous record at Duke, evidence of his increasing maturity and discipline, and the degree of success attendant upon his activities during the time away from Duke.

Applications for readmission must be completed by November 15 for enrollment in January, by April 1 for enrollment in the summer, and by July 1 for enrollment in September. For readmission to the School of Nursing, however, it is required that the readmission procedure be completed by March 1 for September enrollment and by November 1 for January enrollment.

Leave of Absence. An upperclass student in good standing may apply to his academic dean to take a leave of absence for one or two semesters. He must apply before the end of the fall semester for a leave of absence during the spring semester, and before August 15 for a leave of absence during the fall semester. Additional information is available from the academic deans. If granted leave, the student must keep his dean informed of any change of address.

Registration materials are mailed to all students on leave of absence. A student failing to register will be withdrawn from the University and will have to apply for readmission.

A student who undertakes independent study under Duke supervision and for Duke credit is not on leave of absence even if he studies elsewhere. He registers at Duke as a non-resident student and he pays the appropriate fees or tuition at Duke. This also applies to Duke programs conducted away from the Durham campus.

Transfer Between Duke Schools and the College. A student in good standing may be considered for transfer from one Duke undergraduate school or college to another upon written application and request for letter of recommendation from his academic dean. The review of a student's request to transfer will involve consideration of his general academic standing, citizenship record, and relative standing among the group of students applying for transfer. The school or college to which transfer is sought will give academic counseling to a student as soon as his intention to apply for transfer is known, although no commitment will be implied in doing so. Students wishing to transfer to the School of Nursing for the succeeding year must complete transfer proceedings by March 1; however, openings for transfer are limited. Students seeking transfer are advised to consult the Director of Academic Programs in Nursing as early as possible.

A student may apply to transfer at any time prior to the awarding of a baccalaureate degree or after. If admitted after having earned a baccalaureate degree, he must undertake prescribed additional undergraduate work to qualify for a second baccalaureate degree.

Full-Time and Part-Time Degree Status. Ordinarily candidates for degrees are expected to enroll for a normal course load each semester. A student who needs to change from full-time status, however, or from part-time to full-time status, must consult his academic dean. For special reasons approved by the dean, a full-time student who is qualified to continue may register as a part-time student for no more than two courses. Part-time students may not live in the residence halls.

Resident and Non-Resident Status. Sophomores, juniors, and seniors who

wish to live off-campus may apply to the Dean of Students or the Dean of Student Affairs of the School of Nursing as appropriate. (See page 52.)

Nondegree to Degree Status. A nondegree student must apply to the Office of Undergraduate Admissions for admission to degree candidacy.

Study Elsewhere

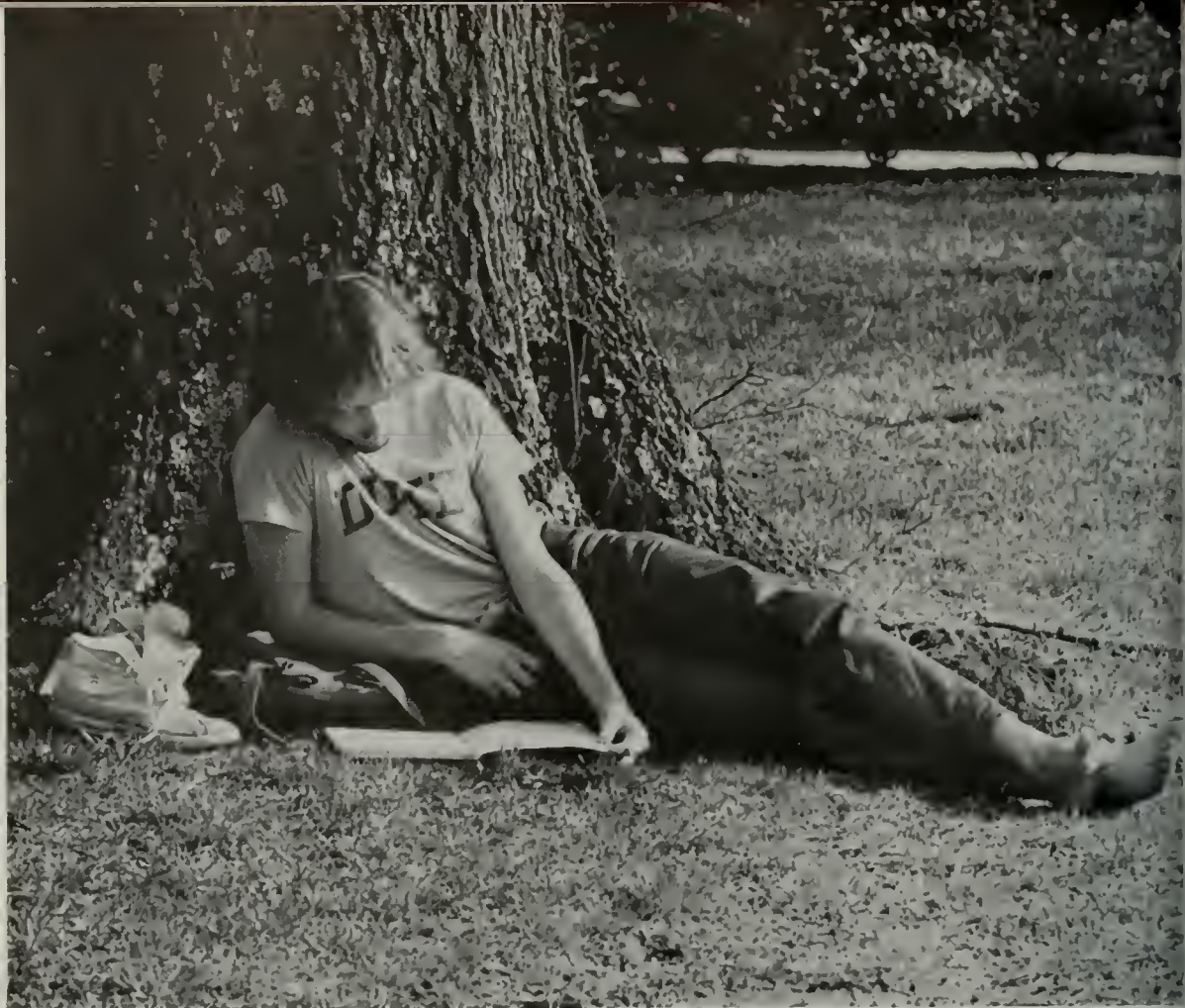
Concurrent Enrollment. A student enrolled at Duke may not concurrently enroll in any other school or college without special permission of the appropriate academic dean. See, however, the statement regarding the reciprocal agreement with the University of North Carolina at Chapel Hill, North Carolina Central University at Durham, and North Carolina State at Raleigh.

Summer Schools—Other Colleges or Universities. Approval forms for courses to be taken at institutions other than Duke may be obtained from the offices of the deans. A student wishing to transfer credit for proposed summer work at another accredited college should present a summer catalog of that institution to his dean and to the director of undergraduate studies in each discipline in which he proposes to take a summer course and request their approval prior to taking the courses.





Study Abroad. A Duke student may earn up to 8 course credits during an academic year for approved work completed at a foreign university or for an approved program abroad sponsored by Duke or by another American college or university. To earn the equivalent of 4 Duke credits each semester, the student who studies abroad will be expected to take a full course load as defined by the program or institution in which he is enrolled. Usually work to be considered for transfer credit must be done in the language in which courses are normally given at the institution attended. Duke, at present, offers several programs in cooperation with other universities. Grades earned in these programs are recorded on the student's official Duke record. Students accepted may study at:



Aix-en-Provence, France. Courses are given during both the fall and spring in French language, art, philosophy, and literature. Completion of French 64, or equivalent, is required prior to departure. This program is administered through Vanderbilt University.

Madrid, Spain. Work is given in Spanish language, literature, art, music, and history for either the fall or spring. Completion of Spanish 64, or equivalent, is required prior to departure. This program is under the direct administration of Vanderbilt University.

Rome, Italy. As one of the participating members in the Intercollegiate Center for Classical Studies in Rome, Duke University nominates majors in classical studies for admission to a semester's work at the center, usually in the junior year. Instruction is offered in Greek, Latin, ancient history, ancient art, and archeology. Some scholarship help is available.

Munich and Freiburg, Germany. Admission to these programs entails matriculation at the University of Munich or Freiburg. The student must, therefore, meet their admission standards. Courses are taken in German language, literature, art, and history through Wayne State University, while additional courses are taken at the German universities.

Warwick, England. In the Warwick Exchange Program, selected Duke students spend a year of study at the University of Warwick, while students from Warwick study for the same period at Duke. The program is designed especially for majors in English, and it is administered jointly by Duke and the University of Warwick.

Leaves of absence from the University are granted to students who study abroad. When possible, arrangements are made for them to register while abroad for the semester in which they plan to return.

Duke University sponsors from time to time summer programs in Austria, France, Germany, Israel, Italy, and Spain. Students are selected competitively and have an opportunity to earn credit and grades for 2 courses.

A student who wishes to transfer credit for study abroad should be guided by the following provisions established by the faculty and administered by the Committee on Study Abroad.

The student should:

1. have a scholastic average of at least a B-;
2. obtain provisional approval to study abroad from the academic dean in charge of study abroad and the director of undergraduate studies in his major department;
3. receive certification, when applicable, from the foreign language department concerned, that he has adequate knowledge of the language of the country where he will study;
4. obtain, before leaving Duke, approval for each course to be taken abroad, by the appropriate director of undergraduate studies, as well as approval of the program by the academic dean in charge of study abroad;
5. apply for leave of absence once program plans are complete.

Information and counsel regarding study abroad may be obtained from the academic dean in charge of study abroad; in all cases he must be informed in advance about a student's plans if credit for the work is desired.

Other Information

Release of Student Records. No information contained in student records (academic or otherwise) is released without the consent of the student. Consent is given by a student when he signs a form authorizing the release of information to one or more persons or agencies. Authorization forms are available in the offices of the academic deans.

Identification Cards. Undergraduate students are issued identification cards and semester enrollment cards which they should carry at all times. These cards are the means of identification for library privileges, University health services, athletic events, and other University functions or services open to them as University students. Students will be expected to present their cards on request to any University official or employee. The cards are not transferable, and fraudulent use may result in loss of student privileges or suspension. A student should report the loss of a card immediately to the Registrar's Office. The cost of a new identification card is \$5.00.



4

Cooperative Programs

Reciprocal Agreements with Neighboring Universities

Under a plan of cooperation between Duke University and the University of North Carolina at Chapel Hill, North Carolina State University at Raleigh, and North Carolina Central University at Durham, a student regularly enrolled in Duke University, and paying full fees, may enroll for 1 approved course per semester at one of the institutions in the cooperative program. If the student takes 2 or more courses during a summer at Duke, 1 of the courses may be taken at one of the neighboring institutions under this plan.

Approval forms for courses to be taken at neighboring institutions may be obtained from the offices of the academic deans at Duke. Ordinarily, only those courses not offered at Duke will be approved. The student pays a normal registration fee of \$2.00 plus any other special fees required of students at the host institution, and he must provide his own transportation.

Continuing Education

Residents in the Durham community who are beyond college age but who have interest in resuming or beginning an undergraduate education are invited to the Center for Career Development and Continuing Education for preliminary counseling. If admitted to the program in continuing education, such students may apply for degree candidacy after the satisfactory completion of 4 courses. A guidance seminar for women, *New Directions*, is offered each semester for adult women who wish to explore their potential and evaluate community opportunities for education, employment, and non-paid involvement. Each semester a series of short non-credit courses for area residents are sponsored by the center. For further information consult the Director, Center for Career Development and Continuing Education.

Reserve Officers Training Corps

Through the Naval and Air Force Reserve Officers Training programs, the University is cooperating with the Department of Defense in providing well-educated officers for the regular and reserve forces of the nation.

The Naval Reserve Officers Training Corps. Two basic programs through which students can qualify for Naval commissions upon graduation are offered: one, the Scholarship Naval Reserve Officers' Training Corps Program provides a maximum of four years in the University largely at government expense, followed by a commission in the regular Navy or Marine Corps; the other, the College Program, which leads to a commission in the Naval Reserve or Marine Corps Reserve.

The Scholarship Program. Quotas are awarded on the basis of an annual nationwide test and selection procedure. Students selected are enlisted in the Naval Reserve, appointed Midshipmen, USNR, and receive four years tuition, fees, and textbooks at government expense. In addition they receive subsistence pay and summer active duty pay which amounts to approximately \$1,300 per year. The scholarship midshipman may take any major at Duke leading to a baccalaureate or higher degree. The student participates in two summer training cruises aboard ship and receives aviation and amphibious indoctrination at naval shore stations for one summer.

Upon graduation he receives a commission as Ensign in the Regular Navy, or Second Lieutenant in the Regular Marine Corps, after which he serves with the Navy or Marine Corps as required by the Secretary of the Navy in the same manner as his officer contemporaries who are graduates of the Naval Academy. The minimum period of active duty is four years for regular officers.

The College Program. The College Program student is selected from regularly enrolled freshmen in Duke University who desire to qualify for a commission in the Naval or Marine Corps Reserve while pursuing normal courses of study. Upon graduation, he will normally be ordered to three years of active duty. He has the status of a civilian who has entered into a mutual contract with the Navy, and he is not eligible for the benefits and pay received by Scholarship Program midshipmen. He enlists in a component of the Naval Reserve and receives subsistence pay of \$100 a month during his last two academic years. In addition he receives active duty pay (about \$300) during the one required summer cruise, normally after his junior year.

Scholarship and College Program Students. No distinction is made between the two in the NROTC Unit. College Program students may compete each year for the Scholarship Program. If selected, they will be appointed to Scholarship status with the attendant benefits and pay. Both Scholarship and College Program students are deferred from Selective Service by virtue of their commitment to serve on active duty after graduation; both are provided necessary uniforms, equipment, and Naval Science textbooks; both are furnished the same instruction and those in both programs are required to wear uniforms on drill days and other special occasions prescribed by the professor of naval science. Upon completion of their undergraduate work, both may apply for continuing studies leading to a graduate degree. If he desires, a student in either program may elect the Marine Corps option at the beginning of his junior year, thus qualifying for a commission in the Marine Corps. Both may participate in a Navy sponsored Flight Instruction Program leading to qualification for a private pilot's license, if successfully completed.

Academic Requirements for a Commission. The academic program for an approved degree and a commission for Scholarship and College Program students must include all Naval Science courses offered and the following:

For NROTC Scholarship students, one year of calculus, one year of physics or chemistry, and Mathematics 51 (or equivalent) are to be completed by the end of the junior year. History 149, Management Sciences 125, and Political Science 121 are to be completed prior to graduation.

For NROTC College Program students, one year of calculus (preferred), or one year of statistics and probability, one year of physics or chemistry (preferred), or one year of biological/earth sciences, and Mathematics 51 (or equivalent) are to be completed by the end of the junior year. History 149, Management Sciences 125, and Political Science 121 are to be completed prior to graduation. Marine option students in their junior and senior years will take 2 relevant courses, approved by the professor of naval science and taught by civilian faculty members.

The Air Force Reserve Officers Training Corps (AFROTC). This unit functions as the Department of Aerospace Studies. It selects, trains, and commissions college men and women who desire to serve in the United States Air Force. Two AFROTC programs exist, a four-year and a two-year program.

The four-year program consists of two segments, one covering the freshman and sophomore years which includes General Military courses, and the other covering the junior and senior years which includes Professional Officer courses. These two segments are linked by a four-week summer field training encampment at selected Air Force bases. Entry into the four-year program is open to freshmen and to sophomores who are willing to make up the course work missed due to late entry into the program. For sophomores this amounts to taking both the freshman and sophomore courses in one year.

Applications for the two-year program should be submitted no later than the spring semester of the sophomore year. Candidates attend a six-week field-training encampment following their sophomore year, which concentrates on the course work missed during the freshman and sophomore years.

Cadets may compete for a scholarship if they so desire: freshmen for a three-year scholarship to begin with the sophomore year; sophomores for a two-year scholarship to begin with the junior year. Candidates for the two-year program may compete for a scholarship during the six-week summer encampment. Scholarships cover full tuition, cost of all required books, certain fees, as well as a stipend of \$100.00 per month. Regardless of whether or not a cadet receives a scholarship, all cadets receive a tax free stipend of \$100.00 per month (limited to \$2,000.00) during their junior and senior years.

A four-year active service plus two-year reserve commitment is incurred upon entry into the Professional Officer segment of the AFROTC Program. For details on entry and commissioning requirements, contact the office of Aerospace Studies.

Army and Navy Corps Student Program. Students in the School of Nursing may apply for appointments in the Army Student Nurse Program at the beginning of their junior year, or in the Navy Nurse Corps Candidate Program at the beginning of their senior year. The appointments carry generous financial allowance. A student who participates twelve months or less serves on active duty in the respective service for twenty-four months. If support for two years has been given, thirty-six months of active duty are required.



5

Student Life

Residential Facilities

It is the aim of the University to provide through its residential program convenient and comfortable lodging that features opportunities for informal learning and the enrichment of the total educational experience. The living units, therefore, are organized to encourage for their residents an intellectual atmosphere, a stimulation of interest in cultural and co-curricular activities, and opportunities for interchange with faculty members and staff, as well as with students from many parts of the country. To assist in the implementation of responsible house government and activities, a member of the residential staff from the office of the Dean of Students lives in most of the houses.

Freshman students are required to live in University residences unless they live at home with parents or close relatives. Housing on campus, however, is not available to transfer students, to former students who have been readmitted, or to part-time students.

Residences for Women in Trinity College of Arts and Sciences. Residential units for undergraduate women are located on both the East and West Campuses. Upperclassmen as well as freshmen live in these houses in an approximate ratio of two to one. In some houses men and women are assigned to separate wings or floors of the same house, and another option exists in living-learning houses or corridors where students who qualify by application are brought together because of special interests. These houses generally are filled by upperclassmen. Several residential units are members of a federation. A federation is a group of separate dormitories, usually including two units for men and two units for women, joined together for common academic and social programs.

Residences for Undergraduate Men. Undergraduate men in Trinity College of Arts and Sciences and in the School of Engineering live in residences located on both campuses. There are all-freshman houses, houses with upper-

classmen and freshmen, and fraternity sections in residential units. Men and women reside on alternate floors or wings of three independent houses. Several of the fraternity and independent houses are members of a federation.

The all-freshman houses accommodate approximately one-half of the freshmen. Each of these houses elects its own officers and council and organizes social, intramural, and other programs. After the freshman year, all fraternity men who live on campus are required to live in fraternity sections. Men who do not affiliate with a social fraternity may choose from among the seventeen independent houses, and each of these houses has its own officers and cocurricular and social programs.

Residences for Women in the School of Nursing. Nursing students live in Hanes House and Hanes Annex. Entering students may request a double or a single room but returning students have first choice of rooms. After the initial assignment, students arrange for room selection and roommates through the Office of the Dean of Student Affairs in Nursing. Resident house counselors, who are on the staff of the Dean of Student Affairs, live in the dormitories and are responsible, with the cooperation of the student government, for the administration of the residential units.

Living Off-Campus. Students above the freshman level who wish to live off-campus should apply for such authorization from the Dean of Students of Trinity College of Arts and Sciences or the Dean of Student Affairs of the School of Nursing, as appropriate. Once nonresident status is approved no guarantee can be made of a space in the dormitories should the student desire to move back on campus. Students beyond the normal fourth year of the undergraduate program cannot be guaranteed space in the dormitories.

If a resident student marries while enrolled and plans to move off-campus, a written request for a change to nonresidency must be submitted with the statement of marriage to the Dean of Students. (In the School of Nursing, a letter from the parents or guardian to the Dean indicating knowledge of the forthcoming marriage must be received prior to the marriage.)

Dining Facilities

The East Campus. All students residing on the East Campus and freshmen in the Graduate Center are required to contract for their meals in the University Dining Halls on a semester basis. They have the option of a seven-day, twenty-one meals a week plan for \$375.00 per semester, or a five-day (Mon.-Fri.) fifteen-meals plan for \$322.50 per semester. There are no provisions for changing plans during the semester. On the East Campus there are two dining halls. Ordinarily the students who reside in Southgate and Gilbert-Addoms take their meals in Gilbert-Addoms, and those living in the other East Campus dormitories take their meals in the East Campus Union. Students who reside in the Graduate Center usually take their meals in the dining room in that building. Due to the large number of students served by the dining halls, it is not possible to provide special diets.

The West Campus. The dining facilities on West Campus include two cafeterias with multiple-choice menus, the Oak Room which is a service dining hall where full meals and *à la carte* items are served, and a self-service snack bar, the Cambridge Inn, which is open throughout the day and evening.

Freshmen and sophomores in the School of Nursing are required to contract for their meals in the University Dining Halls on a semester basis. Their options are the same as those offered to students residing on the East Cam-

pus. The board privilege is available for upperclassmen, who are not required to contract for their meals, by making arrangements through the Dining Halls Office in the Graduate Center.

Religious Life

Two symbols indicate the importance of the religious dimension for Duke University: *Eruditio et Religio*, the motto emblazoned on the seal of the University and the location of the Duke Chapel at the center of the campus.

Within the majestic building that is Duke Chapel, persons from all segments of the University and the surrounding community come together on Sunday morning to worship in a service which offers excellence in liturgy, music, and preaching.

The University ministers work with the chaplains from the Roman Catholic, Protestant, and Jewish communities to provide a ministry which attempts to be responsive to the plurality of University religious interests. The traditional modes of ministry, prophetic, priestly, and prophetic inquiry, are offered in traditional and contemporary forms.

A student can find opportunity within the University community to search for meaning, to ask the ultimate questions, to worship in small communities, to meditate, to participate in contemporary liturgies, to learn from outstanding thinkers in the religious traditions, and to work to bring about a more just and humane society.

Services Available

Offices in Each College and School. In Trinity College of Arts and Sciences, in the School of Engineering, and in the School of Nursing, deans, faculty members, and counselors are readily available to discuss various concerns with students and to assist them in matters relating to courses, majors, careers, co-curricular activities, life styles, residential matters, etc. Often, a dean or counselor within the college or school, or an assigned faculty adviser can help to actualize a plan in the mind of a student, if not directly, by referral. Each college and school has its own academic deans and advisers. In Trinity College of Arts and Sciences, there are academic deans for freshmen as well as academic deans for upperclassmen according to the student's declared major or academic division. In the School of Nursing, each student is assigned an academic adviser for the freshman and each succeeding year.

The School of Nursing has its own Dean of Student Affairs, whereas the Office of the Dean of Students appertains to students in both Trinity College of Arts and Sciences as well as the School of Engineering. The Office of Black Affairs pertains to the needs of all black students at Duke.

University Health Service. The aim of the University Health Service is to provide medical care and health advice to help the student enjoy his privilege of being a part of the University community. To serve this purpose, both the University Health Services Clinic and the University Infirmary are available for student health care needs.

The facilities of the University Health Services Clinic are available during both regular and summer sessions to all currently enrolled full-time undergraduate students as well as to regularly enrolled students in the graduate and professional schools. For treatment of most illnesses or injuries, students should first visit the University Health Clinic. The campus bus makes regular runs to the clinic; however, if required, emergency transportation can be obtained from either the Duke Campus Police or the Durham

Ambulance Service. Residential staff personnel should be consulted whenever possible for assistance in obtaining emergency treatment. For a description of the specific services provided by the clinic and infirmary, the *Bulletin of Information and Regulations* should be consulted.

The University Counseling Center. The University Counseling Center provides services designed to assist individuals in gaining a better understanding of themselves and of the opportunities available to them and to aid them in developing more effective problem-solving skills. The professional counselors do not attempt to impose solutions on the individual, but rather



they provide help the individual needs to make judicious decisions and help him work out his own problems. The following are some of the areas in which the counseling services are offered: choosing a career, planning programs leading to careers, identifying and overcoming educational deficiencies, developing greater self-understanding, and developing more effective social relationships.

The counseling center has available a wide variety of tests which may be employed in the counseling process. These tests provide measurements of general ability, scholastic aptitude, special skills, vocational interests, and levels of adjustment. In the process of counseling, the counselee may, with the help of the counselor, choose those tests that may provide information he needs to make decisions. Counseling is confidential between the counselor and student.

Center for Career Development and Continuing Education. The center provides undergraduate students with assistance in establishing career goals. The goal of the center is to identify and coordinate all elements of the learning environments to help students reach their career goals. Working in cooperation with the University Counseling Center, the Office of Placement Services, and the deans in the undergraduate college and the professional schools, the center sponsors a variety of programs which allow students to preview the situations they are likely to encounter after graduation. These include the Internship Program, which arranges volunteer placement in community agencies; the Continuing Education Program which uses student teachers, tutors, and assistants in meeting community needs; dormitory group-counseling sessions to assist students in determining contemporary career trends, identifying their abilities and interests, and exploring career options; Freshman Introductions, a series of seminars to explore non-traditional careers and new trends in established careers; a speaker's bureau which brings individuals from the community into the classroom for lectures and discussions; and conferences on topics of contemporary concerns. Although the center works with both men and women, the position of modern women is of particular concern, and to that end the center works closely with student groups interested in women's programs and studies.

Office of Placement Services. The Office of Placement Services is the liaison between the University community and potential employers in business, education, and government. Its function is to help Duke students obtain employment consistent with their qualifications, interests, and desires. The office arranges initial interviews with representatives from business and industry, schools and colleges, government agencies, and graduate schools, and maintains an extensive file of openings for permanent employment. Information about summer employment is also available.

Seniors interested in the Office of Placement Services should register early in the year. Personal interviews with members of the staff are available to seniors after they have registered.

Judicial System and Regulations

Duke University expects and requires of all its students full cooperation in developing and maintaining high standards of scholarship and conduct. Each student is subject to the rules and regulations of the University as currently in effect or are, from time to time, put into effect by the appropriate authorities of the University. At the same time, the individual is responsible for decisions and choices within the framework of the regulations of the community as Duke does not assume in loco parentis relationships.

Any student, in accepting admission, indicates his willingness to sub-

scribe to and be governed by these rules and regulations and acknowledges the right of the University to take such disciplinary action, including suspension or expulsion, for failure to abide by the regulations or for other conduct adjudged unsatisfactory or detrimental to the University.

Responsibility for prescribing and enforcing rules and regulations governing student conduct rests ultimately with the Board of Trustees of Duke University and, by delegation, with administrative officers of the University and of the schools and college. In the undergraduate units, as well as the University as a whole, many of these rules have been established over the years by cooperative action between students and administrative officers and, in the case of some rules, with participation of faculty members as well. Representative student organizations, such as student governments, and judicial boards, and more recently, community-wide bodies of students, faculty, and administrators, have initiated proposals for policies and rules necessary to assure satisfactory standards in academic and non-academic conduct; and these proposals have been accepted by University officers and have become a substantial, if not all-inclusive, body of rules governing student life at Duke. For current regulations, the *Bulletin of Information and Regulations* should be consulted.

Students in Trinity College of Arts and Sciences, the School of Engineering, and the School of Nursing constitute an undergraduate community whose members are subject to the Undergraduate Community Code. Violations of the code and certain University regulations are adjudicated before the Undergraduate Judicial Board, composed of representatives of the student body, the faculty, and the administration. The constitution of the Board, the Judicial Code of the Undergraduate Community, and the procedural safeguards and rights of appeal guaranteed to students are published in the *Bulletin of Information and Regulations* for the undergraduate college and schools. As provided under the judicial structure of the University, each residential unit has a Judicial Board which has jurisdiction over all offenses involving violations of regulations relating to dormitory procedures and social regulations not covered by the Undergraduate Community Code or University policies and regulations. The Judicial Board of the Student Government Association of the School of Nursing (NSGA) has the major role in supervising phases of community living which directly concern the welfare of the students in the School of Nursing.

Student Activities

Office of Student Activities. The office of Student Activities has as its responsibility the coordination and advising of those activities, undergraduate and graduate, that transcend the individual college and schools with a major emphasis on the development of the full range of these activities as they relate to the educational function of the University. In addition, this office is responsible for giving financial advice and coordination in cooperation with the Controller's office.

Associated Students of Duke University. The Associated Students of Duke University (ASDU), composed of representatives of each of the undergraduate living groups on campus and representatives of students living off campus, is responsible for the articulation of student thought and opinion on University-wide matters and for the shaping of student opinion toward constructive changes in the educational process and University environment.

The ASDU legislature is composed of representatives of each of the undergraduate living groups on campus. It acts in three ways. First, it fulfills the role of student government, chartering student organizations, regulating student elections, and certain aspects regarding conduct and so forth.

Second, it attempts, as a student voice, to discern problems of primary concern to the student body and to take positive action in those areas. Third, it tries to identify subtle aspects of decision-making which underlie these problems and focus student attention on these issues.

The executive cabinet is the coordinating body of all ASDU functions. It consists of the president, four vice-presidents (two from Trinity College of Arts and Sciences and one each from the School of Engineering and the School of Nursing), an executive secretary, and an administrative secretary.

Various executive committees of ASDU undertake projects for the direct benefit of the student body, such as those concerned with residential life, academic affairs, admissions, etc. A budget commission allocates all student fees and University subsidies to the various student organizations.

Cultural and Social Organizations. The scope of the more than one hundred student organizations is suggested by a partial listing of the following activities: Association of African Students, Alpha Phi Omega service fraternity, Bridge Club, Chess Club, Campus Crusade for Christ, Cheerleaders, International Club, Karate Club, Outing Club, Sailing Club, Students for a Democratic Society, Women's Liberation, Young Americans for Freedom, and the YMWCA.

Seventeen national and two local social fraternities, as well as nine social sororities, are represented on campus and governed by Interfraternity and Pan-Hellenic Councils.

Many opportunities are provided on campus in the area of music and drama. The Duke Chorale, the Chapel Choir and Chancel Singers, the Wind Symphony, Pep Band, Symphony Orchestra, and the Madrigal Singers are examples of musical activities. Duke Players performs established and experimental drama; Hoof 'n' Horn presents musical comedy.

Most academic departments sponsor organizations and programs for students with special academic or professional interests. There are also academic and leadership honorary societies.

The Union Building, located on the West Campus, is the center for student activities. It houses, among other groups, the University Union which brings students together in carrying out its stated purpose—to stimulate, promote, and develop the social, recreational, cultural, educational, and spiritual activities of the Duke University community. The Union sponsors a broad program including lectures, concerts, recreational activities, dances, and exhibits adapted to the leisure time interest and needs of individuals and diverse groups within the University and Durham communities.

In one section of the West Campus Union are housed dining facilities, University store, grill, beer hall, soda fountain, post office, barber shop, bank, and ballroom. Elsewhere in the building are student organization offices, meeting rooms, and information center, music and reading lounge, and recreational areas. Similar services and activity areas are provided on the East Campus.

Office of Cultural Affairs. The Office of Cultural Affairs is responsible for the coordination of many of the cultural events and entertainment which take place on the campus. In addition, the Duke University weekly calendar of events and semester calendar of events are published and distributed from this office.

Media. The Duke Chronicle, the campus newspaper, is published five times weekly, and the student-operated FM and carrier current radio station, WDBS, produces daily programs. Three magazines and a comprehensive yearbook are published by students for all students. These publications are under the direction of a Publications Board empowered to choose the editors and business managers and to review and approve the financial statements of all franchised publications.



The *DukEngineer* is the official student-published magazine of the School of Engineering. It appears twice each semester and contains articles on technical and semi-technical topics and other matters of interest to the School.

The *Charge* is the student undergraduate handbook of the School of Nursing which is published by students annually. It contains information and regulations which pertain to students within the School of Nursing.

Recreational Activities and Intramurals. The Duke recreation and intramural programs provide all students an opportunity to participate in some form of informal and competitive physical activity.

The men's program consist of seventeen different activities which include archery, bowling, cross country, golf, handball, horseshoes, tennis, flag football, badminton, paddle ball, basketball, swimming, table tennis, volleyball, wrestling, softball, and track. In a typical year more than 3,000 students compete for the many intramural titles and trophies that are awarded. Each year Duke, North Carolina, North Carolina State, and Wake Forest meet in the annual Big Four Intramural Day.

The women's program encompasses competition in badminton, basketball, bowling, tennis, and volleyball. In addition, special events in other areas of interest are conducted, and various clubs including modern dance, water ballet, and other sports offer the student opportunities to take part in extracurricular activities.

Through coed intramurals, the student is encouraged to participate on a less competitive level promoting a relaxed social as well as physical activity. Opportunities for coed competition are provided in the areas of badminton, table tennis, tennis, and volleyball.

The University's varied athletic and recreational facilities and equipment are available for use by the students. The facilities for recreation in-

clude a golf course, lighted tennis courts, three swimming pools, a student activities building, three gymnasias, outdoor handball and basketball courts, an all-weather track, and numerous playing field and informal recreational areas. A variety of clubs dealing with gymnastics, scuba diving, sailing, cycling, karate, rugby, soccer, and other activities are available to interested students.

Intercollegiate Athletics. Duke is a member of the National Collegiate Athletic Association, the National Association of Intercollegiate Athletics for Women, and the Atlantic Coast Conference (ACC). The ACC consists of Clemson, Duke, Maryland, North Carolina, North Carolina State, Virginia, and Wake Forest.

The intercollegiate program for men at Duke University offers twelve varsity sports. They are football, cross country, soccer, basketball, swimming, fencing, wrestling, track, baseball, golf, tennis, and lacrosse. Freshmen are eligible to participate on all varsity teams. Freshman and junior varsity programs are provided in football and basketball.

The director of men's athletics provides departmental leadership and coordinates all athletic policies with the University Athletic Council. The Council consists of representatives from the undergraduate student body, the faculty, the administrative staff, and the alumni. They meet with the Director of Athletics periodically during the school year to discuss the athletic programs and make recommendations concerning athletic policies. The Chairman of the Council is appointed by the President of the University, and he is the official University representative at national and conference athletic meetings.

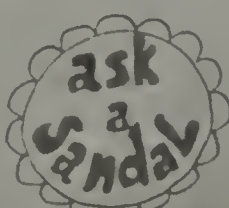
The women's athletic program, a function of the Women's Physical Education Department, provides intercollegiate competition in eight sports: basketball, fencing, golf, gymnastics, hockey, swimming, tennis, and volleyball. The teams are coached and/or advised by members of the Women's Department or other appropriately trained personnel. One member of the staff serves as athletic coordinator.



INFORMATION

HUNGER?? ↑ **Need**
directions??

CONFUSED
ALREADY??



6

Admission

Principles of Selection

James B. Duke, in establishing his Indenture of Trust, requested that "great care and discrimination be exercised in admitting as students only those whose previous record shows a character, determination, and application evincing a wholesome and real ambition for life." In this light and in view of the institution's limited enrollment, Duke University looks beyond the basic characteristics of academic competence possessed by the majority of applicants. It seeks in each prospective student, regardless of race, sex, color, religion, or national origin, evidence not only of intellectual promise and maturity of judgment, but also a degree of positive energy. Often, this energy is expressed in the form of special talents and accomplishments, but it is consistently seen in a student's determination to make creative use of the opportunities and challenges posed by Duke University.

Requirements for Application

Although there are no inflexible subject matter requirements, students are urged to formulate a high school program of breadth and challenge. At least 12 units of acceptable college preparatory work must be presented for review. Applicants for the School of Engineering are advised to take 4 units of mathematics and at least 1 unit in physics or chemistry.

The Scholastic Aptitude Test given by the College Entrance Examination Board and three Achievement Tests (one of which must be in English composition) are required of all candidates for freshman admission and must be taken by the application deadline. Since placement in language study can be determined by an achievement test score, it is recommended that a candidate who expects to continue study in a foreign language take the CEEB Achievement Test in that language. Candidates for the School of Engineering are required to take an Achievement Test in mathematics.

Application Procedures

Application forms and a *Bulletin of Information for Prospective Students* may be obtained from the Office of Undergraduate Admissions, Duke University, Durham, North Carolina 27706. A non-refundable processing fee of \$20.00 must accompany the completed application form.

A personal interview at Duke is not required for admission; students who find it possible to visit the campus, however, may write for an interview or participate in one of the group information sessions held during particularly busy periods. Interviews cannot be guaranteed during the early months of the calendar year when applications are under review.

April Notification. Candidates for admission to the freshman class must apply no later than January 15 of their senior year in secondary school and normally do so during the preceding autumn. Decisions are mailed from the University by April 15, and accepted candidates are expected to reserve a place in the class by May 1.

February Notification. The student who indicates on his application that he wishes to learn his admission decision by February 1 of his senior year must observe a December 15 application deadline. Results of Scholastic Aptitude Tests and achievement tests taken through December may be submitted for review. Applicants for February notification are urged to apply concurrently to other colleges, although those who are accepted by Duke in February must pay the registration and room deposit fees by February 15 in order to reserve a place in the class. Because neither of the two notification dates is designed to be more competitive than the other, students who receive negative decisions in February should not request that their applications be reviewed once again in April.

Midyear Admission. Midyear admission allows a limited number of freshmen to begin their college work a semester early or to postpone matriculation for a semester. Midyear applicants are expected to complete all the requirements set forth for fall admission. The application deadline for new candidates is November 1; students will be notified of the decision on their applications by December 1 with the expectation that those who are accepted will reply by December 15.

Admission by Transfer. Admission by transfer from other accredited institutions may be arranged for a limited number of students each semester. Because the transcript of at least a full year of academic work is preferred by the Admissions Committee and because transfer students are required to spend their last two years at Duke, most candidates apply to Duke during their third or fourth semester in college. Candidates submit official transcripts of all work completed at other accredited colleges, scores on the Scholastic Aptitude Test, and employment records if there has been an extended period of employment since graduation from secondary school. See page 31 concerning evaluation of transfer credit.

All transfer students should expect to be responsible for their own housing arrangements. The Office of Housing Management provides assistance to students who seek housing and/or roommates.

September transfers observe a March 1 application deadline, learn of their decisions by May 1, and respond to the University by May 15. January transfers apply by October 1, learn of their decisions by November 1, and reply to the University by November 15.

Nondegree Students. A few individuals are permitted to enroll as non-degree students in most of the courses open to degree students, but under no circumstances can places in courses be pre-empted for them. These students are given academic and career counseling by the Center for Career

Development and Continuing Education and are subject to most of the regulations set forth for degree candidates.

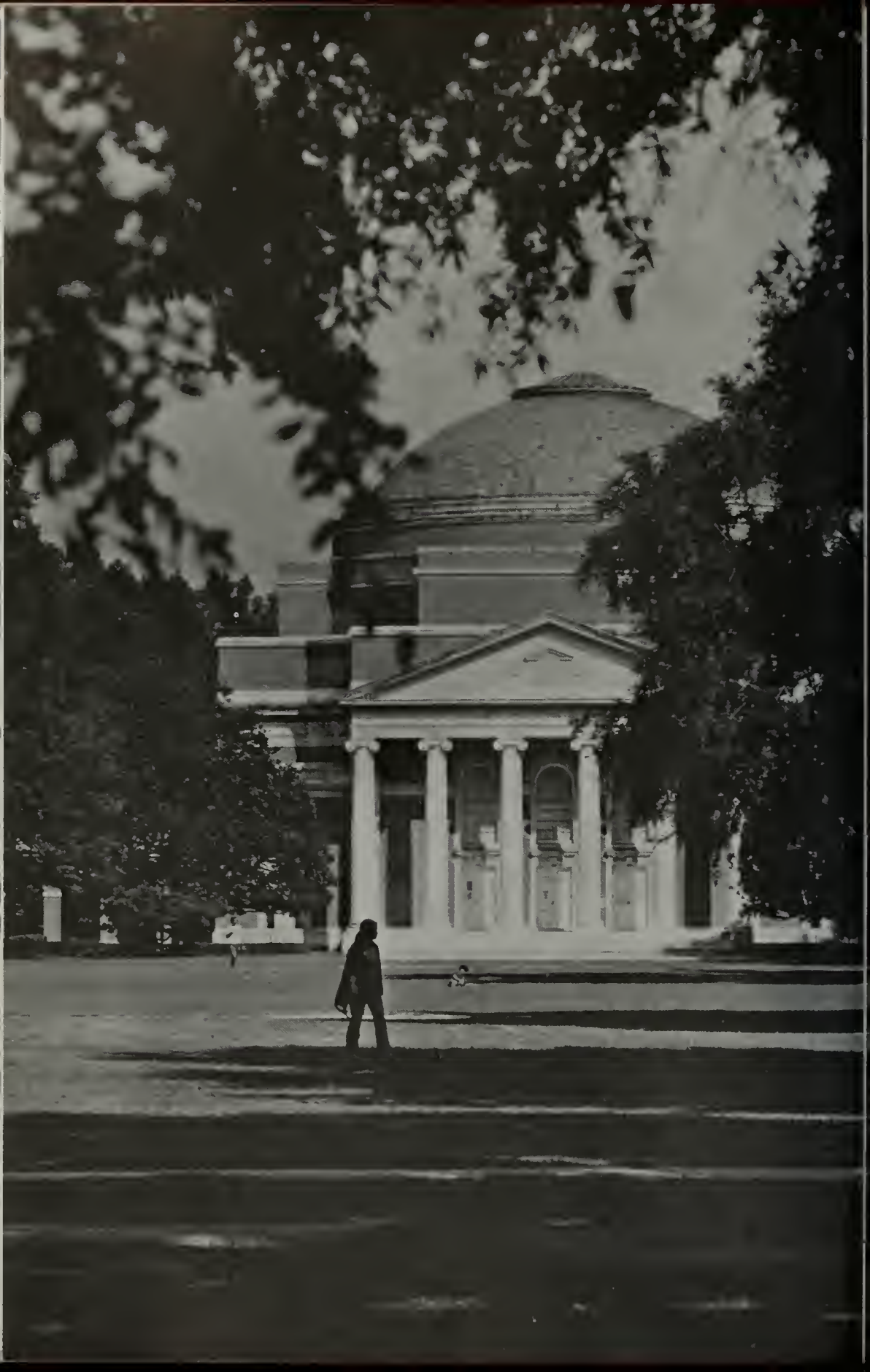
Nondegree applications may be obtained from the Office of Undergraduate Admissions and should be submitted to that office, accompanied by a \$20.00 application fee, at least one month before registration.

At least 8 courses must be completed successfully before a nondegree candidate may apply for degree candidacy; students who plan to complete the 8 courses should not expect automatic admission to the University. Students who are enrolled at other colleges or universities and who come to Duke for a semester or an academic year are not eligible to request degree status at Duke until after they have returned to their home institutions for at least one semester.

More detailed information is available in a handbook provided by the Center for Career Development and Continuing Education, 112 East Duke Building, Duke University, Durham, North Carolina 27708.

Readmission of Former Students. A student who desires to return, following withdrawal from college, should apply to the dean of his college. See page 41 for readmission procedures and dates. Students who have been withdrawn from the University for five or more years must submit a new application to the Director of Undergraduate Admissions.





Financial Information

Tuition and Fees

No college or university can honestly state that an education at the college level is inexpensive. Yet, fees paid by students cover less than half the cost of their instruction and the operation of the University. Income from endowment and contributions from alumni and other concerned individuals meet the balance and assure each student the opportunity to pursue an education of unusually high quality.

Students are urged to give their attention first to the selection of institutions which meet their intellectual and personal needs, and then to the devising of a sound plan for meeting the cost, including a knowledge of the University's financial aid program, as well as the family's own resources. A brochure describing in detail the various forms of financial aid may be obtained from the Office of Financial Aid, Duke University, Durham, North Carolina 27706.

Estimated Expenses for an Academic Year.* Certain basic expenditures such as tuition, room, and board are to be considered in preparing a student's budget. These necessary expenditures, with a reasonable amount allotted for miscellaneous items, are shown below:

Tuition	\$2,800+
Residential Fee	
Single room	\$639-\$778
Double room	\$477-\$581
Food	
Seven-day board plan	\$750
Five-day board plan	\$645
Cafeteria estimate	\$800
Books and Supplies	\$200

*The figures contained in this section are projected and are subject to change prior to the beginning of the fall, 1974, semester.

†For juniors and seniors in the School of Nursing, the tuition is \$2,900 per year.

It should be realized that additional expenses will be incurred which will depend to a large extent upon the tastes and habits of the individual. It is realistic to suggest that the average Duke student, however, can plan on a budget of \$4,800.00 for the academic year. Travel costs, clothing purchases, and other major expenditures would have to be added to this estimate.

Debts. No records are released and no student is considered by the faculty as a candidate for graduation until he has settled with the Bursar for all indebtedness.

Bills may be sent to parents or guardians provided the Bursar has been requested in writing to do so. Failure to pay bills on or before the due dates will bar the student from class attendance until the account is settled in full.

Tuition. The tuition charge of \$1,400.00 per semester (\$2,800.00 for the academic year) is due and payable not later than the day preceding the first day of classes for a particular semester.

Registration Fees and Deposits. On notification of acceptance, students are required to pay a nonrefundable first registration fee of \$20.00 and to make a deposit of \$100.00. The deposit will not be refunded to accepted applicants who fail to matriculate. For those who do matriculate, \$50.00 of the deposit serves as a continuing room deposit for successive semesters, and the remaining \$50.00 serves as a continuing registration deposit.

Late Registration. Students who register in either semester at a date later than that prescribed in the Calendar must pay to the Bursar a fee of \$10.00.

ROTC Deposit. An air force ROTC deposit of \$10.00 is required of students enrolling in air science to cover possible loss of military equipment issued to them. This deposit is refunded to the student upon return of issued equipment.

School of Nursing. Special nonrefundable laboratory and health fees are charged as follows: sophomores—\$50.00; juniors—\$25.00; seniors—\$50.00. The health portion of this fee is not a student health insurance fee, but a charge which covers X-rays, laboratory tests, and a physical examination for students at their entry and exit points of clinical experience. These physical examinations must be conducted at Duke University. A declaration of satisfactory health is required by the School (1) for personal protection of the student, (2) by affiliating clinical agencies, and (3) for nurse registration applications at completion of the program. The laboratory portion of the fee includes the cost of a stethoscope in addition to other items. Additional medical fees may be required for certain nursing electives.

Part-time Students. In the regular academic year students who register for no more than two courses in a semester are classified as part-time students. Part-time students will be charged at the following rates: One course, \$280.00; half-course, \$140.00; quarter-course, \$70.00; one course plus laboratory or precept, \$375.00. Registration for more than two courses requires payment of full tuition. Graduate students registered for undergraduate courses will be assessed 3 units for non-laboratory courses and 4 units for laboratory courses. Nondegree men and women students beyond usual college age who are on review for admission to degree programs, as designated by the Office of Continuing Education, pay fees by the course whether the course load is one, two, or three courses.

Auditors. Auditing of one or more courses without charge is allowed students paying full fees, provided that the consent of the instructor is obtained. Students who are enrolled for one or two courses may audit other courses by payment of \$40.00 for each course audited. With the consent of the appropriate instructor and the Registrar, graduates of Duke may audit undergraduate courses for \$40.00 for each course.

Duke Employees. Full-time employees with one or more years of service with the University may request permission to take for credit or audit up to two courses during any one semester. Permission may be granted based on the individual merits and circumstances of each application. Employees receiving permission to take such courses for credit will be charged one-half of the tuition rate for part-time students as shown above. Courses may be audited upon payment of \$20.00 per course.

Fees for Course Changes and Transcripts. Changes in registration for courses for reasons not arising within the University require a payment of \$1.00 for each change made. Requests for transcripts of academic records should be directed to the Office of the Registrar. Ten days should be allowed for processing. A minimum fee of \$2.00, payable in advance, is charged for a single copy. A charge of fifty cents will be made for each additional copy on the same order.

Living Expenses*

Housing. In the residence houses for undergraduate students other than nurses, the residential fee for a single room ranges from \$639.00 to \$778.00 for the academic year; for a double room, the fee ranges from \$477.00 to \$581.00 per occupant. In the Graduate Center, the residential fee for a single room is \$527.00 for the academic year; for a double room, it is \$393.00 for each occupant.

The residential units of the School of Nursing are Hanes House and Hanes Annex. The residential fee for a single room is \$697.00 for the academic year; for a double room, it is \$520.00 for each occupant.

Detailed information concerning the student's obligations under the housing contract and the consequences of failure to comply are published in the *Bulletin of Information and Regulations*.

Food Services. See Food Services on page 52 for a description of dining facilities on both campuses and the options or requirements for board contracts. The charge for board is \$375.00 per semester on the seven-day plan or \$322.50 per semester on the five-day plan, payable at the time of registration.

Refunds

If a student withdraws, he or his parents may elect to have tuition, as well as room and board (if applicable), held as credit for later study, or refunded according to the following schedule:

<i>Withdrawal</i>	<i>Refund</i>
Before classes begin	Full amount
During first or second week	80%
During third to fifth week	60%
During sixth week	20%
After sixth week	None

In the event of death, or involuntary withdrawal to enter the armed services, refunds will be made on a pro rata basis.

The \$50.00 registration deposit will be refunded to students (1) whom the University does not permit to return, (2) who graduate, or (3) who request the refund prior to registration, thus indicating their intention not to return for

*The figures contained in this section are projected and are subject to change prior to the beginning of the fall, 1974, semester.

the following semester. The registration deposit will not be refunded to students who register but fail to enter the following semester on schedule.

Arrangements for refund of the \$50.00 room deposit are described in information furnished each student by the Housing Bureau.

Student Aid

It is the policy of Duke University to provide adequate financial aid for all students when evidence of need exists. The amount of financial assistance approved for an individual varies directly with his financial need determined according to widely accepted principles recommended by the College Scholarship Service.

For the student with demonstrated need, the net cost of an education at Duke University will generally be no greater than that for college attendance at a private institution elsewhere. It is the intention of the Financial Aid Office to set each award at a level which will enable a student to meet all the costs of attending Duke University, taking into consideration the contribution that can reasonably be expected from the student, his family, and any available outside sources.

During the current academic year, approximately one-third of the student body received more than three million dollars in scholarships or loan funds.

Financial Aid for Entering Freshmen. Candidates should initiate their application for financial aid concurrently with their application for admission during the fall semester of their senior year in secondary school. Instruction concerning the specific requirements and deadline dates will accompany the application materials. The Parents' Confidential Statement must be submitted to the College Scholarship Service. This form may be obtained either from a high school guidance counselor or from the Financial Aid office, 614 Chapel Drive, Durham, N. C. 27706. A certified copy of the parents' current Federal Income Tax Form 1040 must also be submitted.

A student in residence who is receiving financial assistance based upon need may not register an automobile on campus during the academic year for which the aid is granted without special permission for an appropriate reason.

Renewal of Financial Aid after Freshman Year. Each year students must file an application for renewal of financial aid. This application must include a new Parents' Confidential Statement and a certified copy of the parents' current Federal Income Tax Form 1040.

In order for financial aid to be renewed, a student must be in good academic standing with the University. A.B. Duke and J.A. Jones Scholars are expected to maintain considerably higher than a minimum average. If it is necessary for a student to receive an I (incomplete), an X (absence from final examination), and a W (withdrawn) on his report, he must consult his academic dean.

Types of Financial Aid. Gift scholarships or grants, long-term loans, and employment are integral parts of the financial aid program, and some portion of the aid offered an undergraduate will normally be in each of these forms. In 1973-1974, the self-help portion will consist of a \$600 loan and a job paying \$600. Acceptance of a gift scholarship does not require the student to undertake the loan or job portions of his award. Duke has several scholarships based on need which are available annually from personal endowments and corporation sources. Some are designated for entering freshmen, whereas others are awarded to upperclassmen. These scholarships may be based upon achievement in a particular field or an overall outstanding record.



Gift Scholarships. The following are among the named gift scholarships offered through Duke University:

Angier B. Duke Memorial Scholarships. Recipients of these awards are students whose superior records mark them as young men and young women who give outstanding promise of becoming leaders in their chosen fields of endeavor. Candidates for admission to the freshman classes in Trinity College of Arts and Sciences, the School of Engineering, and the School of Nursing are eligible to apply. Forty are usually available for each freshman class with a value of \$500.00 to \$4,300.00 annually, depending upon financial need.

W. N. Reynolds Memorial Scholarships. Recipients of these awards are students of outstanding ability and need who have made superior records and show promise of constructive leadership. In considering candidates for the awards, consideration will be given in the following order:

1. Children of employees of R. J. Reynolds Tobacco Company or any of its affiliates or subsidiaries.
2. Children of families residing in Forsyth County, North Carolina.
3. Other candidates who are residents or natives of North Carolina.

Number available: Four for each freshman class.

Value: \$500.00 to \$4,300.00 annually.

United Methodist Scholarships. A number of United Methodist Scholarships, valued at \$500.00 per year, are available on a basis of demonstrated need to Methodist students who have given evidence of leadership in their local Methodist Youth Fellowship Groups.

Christian Vocations Scholarships. Students preparing to enter full-time religious work are eligible to apply for special consideration on the basis of need. These students will be required to submit the Parents' Confidential Statement. Students with need will be recommended by the Director of Undergraduate Financial Aid to the Christian Vocations Scholarship Committee which will consider the vocational commitment of the applicant. Students approved by the Christian Vocations Scholarship Committee are required to sign a note each semester for the amount of financial assistance granted. These notes will be cancelled upon evidence that the student has entered full-time Christian work after graduation.

Alice M. Baldwin Scholarships. One or more of these scholarships, vary-

ing in amount from \$200 to \$2,000, are awarded to rising seniors in Trinity College of Arts and Sciences on the basis of scholarship, character, and leadership.

Woman's College Memorial Scholarship. The Woman's Residence Council established in 1972 a Woman's College Memorial Scholarship Fund. From this fund one or two awards, of approximately \$500 each, may be made annually to undergraduate women in Trinity College of Arts and Sciences who have made significant contributions to the academic and residential life of the University.

Evelyn Barnes Memorial Scholarship. One \$400 or two \$200 grants are awarded to undergraduate women who are contributing to the musical life of the University. Scholarship, character, and leadership are considered. Recommendation by a member of the music faculty or by the Director of the Chapel Choir is required.

Panhellenic Scholarship. A scholarship of approximately \$500 is awarded to an upperclass woman student in Trinity College of Arts and Sciences on the basis of scholarship, character, leadership, and service.

Delta Delta Delta Scholarship. A scholarship of \$200 is awarded by Delta Delta Delta to an undergraduate woman on the basis of scholarship and character. The winner of this award is eligible to compete for the national award of a Delta Delta Delta Scholarship of \$1,000.

Sandals Scholarship. A scholarship of approximately \$200 is awarded to a rising sophomore woman in Trinity College of Arts and Sciences, on the basis of scholarship, character, leadership, and potential for contributions to the University community.

Welch Harriss Scholarships. These awards are made to male freshmen who have achieved outstanding academic records and who demonstrate financial need. They are renewable each year as long as the student remains in good academic standing. Consideration will be given in the following order: (1) students from High Point; (2) students from Guilford County, North Carolina; and (3) students from North Carolina. Number available: three for each freshman class.

Florence K. Wilson Scholarships. Grants-in-aid are made each year from the Florence K. Wilson Scholarship Fund to nursing students qualifying for financial assistance. This fund was established in 1961 by combining the School of Nursing's Alumnae Association Fund, the students' Florence K. Wilson Scholarship Fund, and contributions from the Wilson family and friends.

Alyse Smith Cooper Scholarships. Each year six or more scholarships of various amounts are awarded to students demonstrating both talent and need. Preference is given to students from Alamance County, North Carolina. Especially considered are majors in music and art, particularly students of piano, organ, and voice.

Braxton Craven Endowed Scholarships. Scholarships up to the amount of tuition are awarded to outstanding students, with first preference given to Davidson County, North Carolina, residents and second preference to students from North Carolina. The scholarships are approved on a continuing basis, providing satisfactory academic progress is achieved.

Marian Sanford Sealy Scholarship Fund. Established in 1966 with an initial gift from the Durham-Orange County Medical Auxiliary, the Marian Sanford Sealy Scholarship is awarded to a student indicating financial need. Personal qualifications supportive of potential to become an outstanding nurse and a distinguished academic record are the criteria for the recipient of this scholarship.

Lelia R. Clark Scholarship in Nursing. The Duke Hospital Auxiliary established the Lelia R. Clark Scholarship in Nursing in 1971 to cover tuition and fees for a nursing student, preferably one from North Carolina. Prerequisites for the award are a commendable academic record, financial need, and exemplification of the qualities of a person committed to serving others.

Federal Nursing Grants. Funds provided by the federal government are available in limited amounts for grant awards to qualified nursing students.

J. A. Jones Memorial Scholarships. These scholarships, sponsored through the Jones Fund for Engineering, are awarded to engineering students whose outstanding academic and personal qualifications suggest that they will become leaders in a technological society. The awards range from a yearly sum of \$500 to \$3,600, depending on the degree of need. The Jones Scholarships are granted for the first year without regard to the student's intended major within engineering, and they are renewable on the same terms for the second year as long as the student does satisfactory work. For the last two years, they are limited to majors in civil engineering.

Robert H. Pinnix Scholarships. The Robert H. Pinnix Scholarships are awarded annually to two upperclassmen enrolled in the Duke School of Engineering. The award is based upon demonstrated ability, excellence in engineering, and financial need.

Scholarships for Foreign Students. A limited number of awards will be made each year to qualified students from other countries who enter either as freshmen or as students with advanced standing. Candidates for these awards are required to submit the Application for Scholarship and Financial Aid and the Parents' Confidential Statement of the College Scholarship Service provided by the Admissions Office of Duke University. There



are two named awards to bring foreign students to the campus. They are the Carol Cranmer Scholarship (named for a former student) and the Roberta Florence Brinkley International Scholarship (named for a former dean).

The Mary Duke Biddle Scholarship in Music Composition. This scholarship with a stipend of \$2,500 per year is available to a member of each entering class. It is renewable from year to year so long as the student does satisfactory work. The student wishing to apply for this award will be required to submit examples of his music composition. Eligibility is limited to students planning to major in music.

Huguenot Scholarship. A scholarship of \$1,000 per year is available from the Huguenot Society of America to a descendant of a Huguenot ancestor.

AFROTC College Scholarship Program. Beginning in the second semester of their freshman year, cadets are eligible to compete for AFROTC College Scholarships. These scholarships include tuition, books, laboratory fees, and a \$100 monthly stipend. The scholarship is awarded on a merit basis and considers academic achievement, leadership potential, and overall performance. The scholarship can become effective in the sophomore or junior year.

NROTC College Scholarship Program. This scholarship program provides for four years' tuition and textbooks at government expense plus subsistence and summer active duty pay. Selection for this program is made during the senior year in secondary school through a nationwide selection process.

Loans. The loan programs which are available to students through Duke University are listed below:

National Direct Student Loan Program. Loan funds supplied by the federal government through Part E of Title IV of the Higher Education Act of 1965 are available to qualified students. Repayment of loans under this Act normally begins nine months after the student graduates or leaves college, with complete payment scheduled within a ten year period. Interest accrues at the rate of 3 percent annually commencing nine months after the borrower ceases to be a full-time student at an institution of higher education. This loan is part of the student's financial aid award.

Nursing Loans. Loan funds supplied by the federal government are available to qualified students in the School of Nursing. Interest accrues at the rate of 3 percent annually commencing nine months after the student ceases to be a full-time student. A certain percentage of the loan is forgiven for each year the student serves as a professional nurse. This loan is part of the nursing student's financial aid award.

Federal Guaranteed Insured Loan Program. Under the Higher Education Act of 1965 Congress established the Federal Guaranteed Insured Loan Program, which is designed to guarantee and insure student loans. These loans are made by banks or other incorporated state lending agencies, with enrollment of the student certified by the school or college. The interest is 7 percent. Students who qualify will have the interest paid by the government while they are in school. Duke University is a guaranteed lender.

Deferred Tuition Loan Program. A program of deferred tuition is available as a plan through which a sophomore, junior, or a senior may defer payment of tuition until after graduation. Payment may be made by paying 8 percent interest on the amount borrowed as a regular loan. Financial need is not required to receive this loan. Interested students should contact the Office of Undergraduate Financial Aid.

Remission of Tuition. Children of ministers in the North Carolina and Western North Carolina Conferences and children of ministers of all faiths

residing in and serving churches in Durham County are eligible to receive a remission of the tuition charge for a maximum of eight semesters of undergraduate study at Duke University.

Employment. Most financial aid recipients are offered a job as part of their aid package. These jobs require between nine and fifteen hours a week and provide an average stipend of \$600. The money is paid directly to the student.

The Undergraduate Financial Aid Office serves as a clearinghouse for all Duke students desiring part-time jobs both on the campus and in the city of Durham.

Duke University also expects that students receiving financial aid will work during their summer vacation. In the summer before entering college, a freshman should save \$400 for use during his first year of college. In subsequent summers, the student should save \$600 to be used for college expenses.

Paying the Bill. Many families finance a college education with the assistance of an insured tuition payment plan regardless of whether they receive financial assistance from Duke. Although these plans are sponsored by a number of private firms, the University refers parents to plans provided by the Richard C. Knight Insurance Agency, Inc. The company provides the University with the full sum required each semester and arranges a schedule for monthly repayment by the subscribing families. The schedules for repayment vary with the programs offered by the company. Additional information on this particular tuition payment plan may be obtained by writing to Richard C. Knight Insurance Agency, Inc. Insured Tuition Payment Plan, Sixth Street-James Avenue, Boston, Massachusetts 02116.



8

Courses of Instruction

Definition of Terms

Introductory-level courses are numbered below 100; advanced-level courses are numbered 100 and above. Courses numbered 1 through 49 are primarily for freshmen; courses numbered from 100-299 are primarily for seniors and graduate students. (See page 32 for regulations governing enrollment of other students in the two latter categories of courses.)

Odd-numbered courses are usually offered in the fall semester; even-numbered courses in the spring semester. For courses which will be offered in 1974-75, consult the Official Schedule of Courses, available to enrolled students from the Registrar's Office.

Double numbers separated by a hyphen indicate that the course is a year-course and must normally be continued throughout the year if credit is to be received. Double numbers separated by a comma indicate that although the course is a year-course, credit may be received for either semester without special permission.

When S is prefixed to course numbers a summer session offering is designated. The following symbols, suffixed to course numbers, identify "the small-group learning experiences:" S, seminar; P, preceptorial; T, tutorial; D, discussion section.

Air Force Aerospace Studies

For courses in Air Force Aerospace Studies, see the Reserve Officers Training Program.

Anthropology

Professor Friedl, *Chairman*; Professor Fox, *Director of Undergraduate Studies*; Professor LaBarre; Associate Professor Apte; Assistant Professors Cartmill, Casson, Hylander, O'Barr, and Quinn; Instructor Kress

93. Human Origins. Origins and distribution of mankind; primate evolution; a survey of human paleontology and human biology, prehistory and language; and the origins of human social organization and culture. One course. *Staff*

93D. Same course as 93 with discussion section included. One course. *Staff*

93S. Same course as 93 taught as seminar. One course. *Staff*

94. Cultural Anthropology. A study of the dynamics of culture and society; form and function of social institutions. Emphasis is upon primitive societies. One course. *Staff*

94D. Same course as 94 with discussion section included. One course. *Staff*

94S. Same course as 94 taught as seminar. One course. *Staff*

101, 102. Introduction to the Civilization of Southern Asia. (See Interdisciplinary Course 101, 102.)

107. Introduction to Linguistics. Origin and nature of language; methods of descriptive linguistics with reference to historical and comparative linguistics. Prerequisite: sophomore standing. (Also listed as English 107.) One course. *Apte, Butters, Casson, and Hull*

115. Sex Roles in Evolutionary Perspective. Bases for differentiation of tasks and power allocated to the sexes among hunters and gatherers, horticulturalists, pastoralists, and plow agriculturalists. Prerequisite: Anthropology 94 or permission of the instructor. One course. *Friedl*

119. Language, Culture, and Society. Analysis of language behavior within and across societies relating variations in linguistic usage to sociocultural factors: ethno-semantic, social dialects, ethnography of speech, language standardization, multilingualism, language loyalties, problems of lingua franca, language planning, and policies in developing nations. Prerequisite: permission of the instructor. One course. *Apte and Casson*

120. Comparative Language. Anthropological study of human and pre-human non-verbal communication; sound, sense, and structure in Indo-European and other languages; techniques of reconstructing the ethnographic past (philology, glottochronology, paleolinguistics); and an introduction to psycholinguistics and sociolinguistics. One course. *LaBarre*

121, 122. World Ethnography. The major cultural areas of the world in terms of the "universal culture pattern." Ethnographic records are used to illustrate and appraise non-Western man's environment. Two courses. *Staff*

123. Peoples of the World: Mediterranean Europe. Emphasis on economic developments and change in rural communities and on the urbanization of migrants. Prerequisite: Anthropology 94 or permission of the instructor. One course. *Friedl*

124. Peoples of the World: American Indian. A comprehensive survey of the Indians of North and South America, including a study of origins and prehistory, archaeology, racial affiliations, languages, material culture, social and political organization, economics, and religion, discussed in terms of the "culture area." One course. *LaBarre*

125. Peoples of the World: Africa. A survey of the indigenous cultures and societies of Africa. Particular emphasis will be given to the study of kinship, politics, economics, religion, and sociocultural change. One course. *O'Barr*

126. Peoples of the World: Oceania. Selected problems in the development of pre-European and post-European cultures. The relationships between man and Pacific environments. One course. *Kress*

128. Peoples of the World: Asia. A comprehensive survey focusing on the peoples and societies of South, Southeast, and East Asia, including the prehistoric, ethnic, linguistic, religious, and political foundations of the complex civilizations; the response of traditional Indian, Chinese, and Japanese cultures to the West. One course. Apte

129. Peoples of the World: Middle East. Emphasis on language, kinship, economics, politics, and religion. One course. Casson

130. Social and Cultural Change. Contemporary theories of change, including innovation, acculturation, and modernization. Prerequisite: Anthropology 94 or permission of the instructor. One course. O'Barr

134. Political Anthropology. Comparative study of conflict and political action. Decision-making as related to social structure and cultural values. Stateless, emergent, and underdeveloped societies. Prerequisite: Anthropology 94 or permission of the instructor. One course. O'Barr

135. The Ethnography of Complex Societies. Sub-structures in American society studied by ethnographic field methods. Prerequisite: Anthropology 94 or permission of the instructor. One course. Quinn

136. An Introduction to Sociolinguistics. Analysis of language behavior within and across societies relating variations in linguistic usage to sociocultural factors: social dialects, language standardization, language loyalties, multilingualism, language policies in developing nations, and problems of lingua franca will be discussed. One course. Apte and Casson

137. Kinship and Social Organization. Anthropological study of kinship relations and social groups: family, marriage, residence, terminology, descent, and alliance. Prerequisite: Anthropology 94 or permission of the instructor. One course. Casson

162. Introduction to Ecological Anthropology. Behavioral and other biological adaptations in human populations; man-dominated ecosystems in the primitive world. Prerequisite: Anthropology 93 or 94. One course. Casson

164. Peasantry and Peasant Movements. The genesis of peasant movements. Forms of peasant protest and its role in the economic, political, and ritual life of societies. Case studies from Western and Eastern societies, past and present. Prerequisite: Anthropology 94 or permission of instructor. One course. Fox

165. Psychological Anthropology. The mutual relevance of anthropology and the following areas of psychology: child development, social learning, small group interaction, cognition. Prerequisite: Anthropology 94 or permission of the instructor. One course. Quinn

166. Introduction to Archaeology: Man and Culture. Modern methodology and analysis; theories of cultural evolution; survey of world prehistory with an exploration of the uses of ethnographic analogy. One course. Kress

170. Economic Anthropology. Traditional economic systems, including land tenure, division of labor, exchange, leveling mechanisms and markets; and the response of traditional economies to modern forces such as population pressure, migratory labor, plantation agriculture, and agricultural innovation. One course. Quinn

185S, 186S. Junior Tutorial. Prerequisites: Anthropology 94 and permission of the Director of Undergraduate Studies. Half-course or one course. Staff

193. Independent Study. Directed reading and research. Open only to highly qualified students in the senior year, by permission of the Director of Undergraduate Studies. One course. Staff

195S, 196S. Senior Seminar. Prerequisites: Anthropology 94 and any

two 100-level courses in anthropology, and permission of the Director of Undergraduate Studies. Half-course or one course. *Staff*

199S. The Changing South. (See Interdisciplinary Course 199.)

220S. Society and Culture in India. The basic features of Indian cultures and societies from an anthropological perspective. The impact of selected technological and social changes upon the individual, caste, and community. One course. *Fox and Apte*

222S. Topics in African Anthropology. Current research problems in African anthropology, illustrated by a study of tribal societies, in terms of contemporary theories. One course. *O'Barr*

231. Human Evolution I. Evolutionary biology of the primates. Anatomical, behavioral, and molecular adaptations of fossil and living primate populations including *Homo sapiens*. Prerequisite: a course in biology or consent of instructors. (Also listed as Zoology 131.) One course. *Cartmill*

242S. Topics in Prehistory. Anthropological issues derived from archeological and early historical investigations. Prerequisite: Anthropology 93 and 94 or equivalent. One course. *Kress*

243S. Theory and Method in Archaeology. Techniques of geochronology, environmental reconstruction, sociocultural reconstruction and statistical analyses applied to problem areas in archaeology—human cultural origins, lower- to mid- and mid- to upper-paleolithic, post Pleistocene readaptations, origins of agriculture and civilization. Prerequisite: Anthropology 166 or permission of the instructor. One course. *Kress*

244. Primate Behavior. Examination of the social behavior of prosimians, monkeys, and apes in an attempt to understand the evolutionary development of the primate order and the origin of man. One course. *Kress*

245. Functional and Evolutionary Morphology of Primates. History and functional significance of locomotor and feeding adaptations, craniofacial morphology, sense organs, and reproductive systems in primates, including *Homo sapiens*. (Same as Anatomy 238.) Prerequisite: Anthropology 231 (Anatomy 231, Zoology 131), or equivalent, or consent of the instructor. One course. *Hylander and Cartmill*

246. The Primate Fossil Record. Evolution of man and other primates as inferred from fossil remains. Prerequisite: a course in human evolution or permission of instructor. One course. *Cartmill and Kay*

249S. Topics in Economic Anthropology. Prerequisite: Anthropology 94 or permission of the instructor. One course. *O'Barr and Quinn*

250S. The Anthropology of Cities. Organization and behavior of men in urban centers analyzed from an evolutionary perspective; cross-cultural analysis of cities and their varying roles. One course. *Fox*

251. Ethnography of Humor. Examination of theoretical framework, research methods and data-collection techniques for the analysis of humor with the goal of discerning normative behavioral patterns, expectations regarding social roles, interpersonal relationships and social institutions, and the nature of ideologies and world views, within and across cultures. Prerequisite: Anthropology 94 or permission of the instructor. One course. *Apte*

259S. Linguistic Anthropology: Language Acquisition. Biological basis of human linguistic capacity; major theoretical positions in linguistics; acquisition of semantics, syntax, and phonology in English and other languages. Prerequisite: permission of the instructor. One course. *Casson*

260S. Linguistic Anthropology: Phonemics. Application of descriptive

linguistics to analysis of language; concentration on the sound system of non-Western languages. Prerequisite: permission of the instructor. One course. Apte and Casson

261S. Linguistic Anthropology: Morphology and Syntax. Application of descriptive linguistics to analysis of language; concentration on the grammatical system of non-Western languages. Prerequisite: Anthropology 260 or permission of the instructor. One course. Apte and Casson

262S. Anthropology of Law. Legal decision in pre-literate societies. The interrelationships of law and ritual. One course. Staff

263S. Primitive Art and Music. A comparative ethnological study of non-European art and music; sufficient technical background will be provided for non-specialist students. One course. LaBarre

264S. Primitive Religion. The ethnology, social functions, and the socio-psychological meanings of religion in primitive societies. One course. LaBarre

265S. Personality and Society. The sociology and social psychology of human personality, its origins in the primary group, its nature and varieties, and its integrations into secondary group institutions. One course. LaBarre

266S. Personality and Culture. The influence of culture patterns and social institutions upon character structure, socialization of the individual, and the dynamics of human personality. Comprehensive anthropological materials will be drawn upon. One course. LaBarre

270S. Seminar in Ethnographic Field Methods. Research strategies and techniques for field research; participation in a field project in a local community. One course. Casson, O'Barr, and Quinn

271S. Seminar in Methods of Data Analysis. Quantitative analysis of anthropological data. One course. Quinn

275. Rank, Power, and Authority in Pre-Industrial Societies. The role and development of social, economic, and political stratification in specific societies in Oceania, Africa, and the New World. Prerequisite: concentration in anthropology or graduate standing. One course. Fox

276S. Analysis of Kinship Systems. Primitive relationship categories as related to legal norms and social groupings. Theoretical issues and contrasting approaches to the analysis of social classification terminologies. One course. Casson

278S. Special Topics in Political Anthropology. Current research problems in political anthropology. Topic(s) will change each semester. Prerequisite: Anthropology 134 or permission of instructor. One course. O'Barr and Quinn

280S, 281S. Seminar in Selected Topics. Special topics in methodology, theory, or area. Prerequisite: permission of the instructor. Two courses. Staff

291S, 292S. Anthropological Theory. Theoretical, methodological, and comparative issues in anthropology. Two courses. Fox and Quinn

DEPARTMENTAL MAJOR

Prerequisite. Anthropology 93-94.

Major Requirements. Six courses in the department above 93-94, including at least two senior-graduate courses.

An anthropology major normally takes at least four related courses in departments approved by his anthropology adviser. Such courses are usually in the Departments of Anatomy, Art, Botany, Economics, History, Mathematics, Political Science, Psychology, and Zoology.

Art

Professor Covi, Chairman; Professor Jenkins, Director of Undergraduate Studies; Professors Hall, Heckscher, Markman, Mueller, and Sunderland; Assistant Professors V. Pratt and Stars; Instructor Smullin; Lecturer Langedijk; Visiting Lecturer Brown; Part-Time Lecturer van Dijk; Part-Time Instructors Menapace, S. Pratt, Scott, and White

HISTORY OF ART

Introductory courses in art history (Art 61 through 66) are designed as studies in the development of architecture, sculpture, painting, and minor arts as material manifestations of Western culture from ancient to modern times, with some reference to primitive, Oriental, and other non-Western cultures. A student receives instruction in the history of art and in methods of art historical analysis. Credit may not be allowed for more than two courses in the sequence. Introductory courses are open to freshmen, as well as upper-classmen.

Area Courses

61. Introduction to the History of Architecture and Sculpture. One course. Staff

61P. Preceptorial. Elective preceptorial for freshmen or sophomores enrolled in Art 61. Staff

62. Introduction to the History of Painting and Sculpture. One course. Staff

62P. Preceptorial. Elective preceptorial for freshmen or sophomores enrolled in Art 62. Staff

63. Introduction to Ancient Art. Architecture, sculpture, and painting from prehistoric times through the Roman period. One course. Markman

64. Introduction to Mediaeval Art. Development of architecture, sculpture, painting, and related arts, mostly Christian, from about 300 A.D. to about 1400. One course. Sunderland

65. Introduction to Renaissance and Baroque Art. Development of architecture, sculpture, and painting in Western Europe from about 1400 to about 1750. One course. Jenkins

66. Introduction to Modern Art. Development of architecture, sculpture, and painting in Europe and America from about 1750 to the present. One course. Brown

119. Fine Arts Photography Laboratory. History and development of photography as documentation and art, use of materials, techniques, laboratory, and studio practice. Open only to art majors or by permission of instructor. A fee of \$25.00 will be charged, payable upon notification from the Bursar's Office at the beginning of the semester. Half-course. van Dijk

131. Art and Archaeology of the Hellenic World. Preliminary treatment of archaeological material from the Aegean, the geometric, and orientaling periods, followed by the architecture, sculpture, and vase paintings of ancient Greece from archaic through Hellenistic times. Not open for credit to students who have taken Classical Studies 55. One course. Markman

132. Roman Art and Archaeology. The archaeological background for

the formation of the Roman style as derived from Etruscan, Greek, and indigenous Italian sources, followed by the architecture, sculpture, and painting from the early Republic to the end of the empire in Italy, and in the provinces. Not open for credit to students who have taken Classical Studies 56. One course. *Markman*

133. Mediaeval Architecture. A survey of Christian architecture in the Near East, the Balkans, Russia, and Western Europe from the beginnings of the mediaeval style in the late classical period to its disintegration in the fifteenth century. One course. *Sunderland*

134. Mediaeval Painting and Sculpture. A study of painting, including mosaics, manuscripts, stained glass, and sculpture in Western Europe from the late classical period through the fourteenth century. One course. *Sunderland*

135, 136. Art of Northern Europe in the Fifteenth and Sixteenth Centuries. First semester: Netherlandish, French, and Spanish painting with some reference to Franco-Flemish illumination. Second semester; German, Austrian, and Bohemian painting, graphic arts, and sculpture. Two courses. *Mueller*

137, 138. Italian Renaissance Art. A consideration of Italian sculpture and painting in the fourteenth, fifteenth, and sixteenth centuries. The first semester will be devoted to the art of the fourteenth and fifteenth century; the second to that of the sixteenth century. Two courses. *Jenkins*

139S. The Book as an Art Form. From hieroglyphic inscriptions to press books, with particular emphasis upon the relationship of book manufacture and design to its cultural environment. One course. *Sharpe*

140. Seventeenth Century Painting and Sculpture in Europe. Traces the evolution of the Baroque style in European painting and sculpture, with some attention being given to related manifestations in the late sixteenth and early eighteenth centuries. Particular emphasis is laid on developments in Flanders, France, Holland, and Spain. Prerequisite: Art 61 or 62 or 65 or consent of instructor. One course. *Jenkins*

141. American Art. A survey of architecture, sculpture, and painting in America from the time of the first settlers to the present day, including a consideration of the contributions of the English, Dutch, French, and Spanish to the artistic heritage of the United States. One course. *Brown*

143S. History of Prints and Drawings. Fifteenth century to the present. Prerequisite: Art 62, 65, or 66, or consent of the instructor. One course. *Mueller*

144. Renaissance and Baroque Architecture. A study of the development of Renaissance architecture in Italy from its beginnings in the fifteenth century in the works of Brunelleschi to its flowering in the seventeenth century Baroque works of Bernini and Borromini, along with a consideration of the spread of Italian Renaissance forms to north Europe in the sixteenth century and its development into a Baroque style in the seventeenth century. One course. *Sunderland*

145S-146S. The Rise of Contemporary Architecture. A study of the sources and evolution of the architecture of today, from the eighteenth century conflict between romantic historicism and industrialism to the work of Gropius, Le Corbusier, Wright, and their successors. Seniors graduating at midyear may receive credit for 145, which is otherwise prerequisite to 146. Prerequisite: Art 61. Two courses. *Hall*

147. Painting and Sculpture in the Eighteenth and Nineteenth Cen-

turies. An investigation of the development of painting from the final stages of the Baroque in the eighteenth century to the period of the Impressionist Movement in the last decades of the nineteenth century. One course. *Sunderland*

148. Modern Painting and Sculpture: 1863 to 1905. The rise of the anti-academic movement of Impressionism, Divisionism, Symbolism, and the Art Nouveau emphasizing Manet, Van Gogh, Gauguin, Seurat, and Cezanne. Prerequisite: Art 62 or 66. One course. *Brown*

149. Pre-Columbian Art and Archaeology. Architecture, sculpture, pottery, and other arts of the indigenous civilizations in Mexico, Central America, and the Andean region of South America before the Spanish conquest. One course. *Markman*

150. Latin American Art. Architecture, painting, sculpture, and other arts. Emphasis on the architecture of the colonial period. One course. *Markman*

165. Painting and Sculpture: 1905 to Present. Evolution and interaction of major European and American movements. Prerequisite: Art 148 or consent of the instructor. One course. *Brown*

191T, 192T. Independent Study. Directed reading and research. Open only to qualified students in the junior year, by permission of the department. Two courses.

193T, 194T. Independent Study. Directed reading and research. Open only to qualified students in the senior year, by permission of the department. Two courses.

For Seniors and Graduates

217. Aegean Art. A study of the problems of Aegean art as the forerunner of Greek art and in relation to the contemporary civilization of the Eastern Mediterranean world. One course. *Markman*

218. Early Greek Art. A study of the problems of the origin and development of Greek art in the Geometric period to the end of the Archaic period. One course. *Markman*

233. Early Mediaeval Architecture. The development of religious architecture from the time of Constantine to the end of the first romanesque style in the third quarter of the eleventh century. One course. *Sunderland*

234. Romanesque Sculpture. The development of sculpture in Western Europe from the early Christian period through the culmination of romanesque art in the west portal of Chartres Cathedral. One course. *Sunderland*

237. French Renaissance Art. Sixteenth century painting and sculpture in France with special emphasis on Italian influences. Prerequisites: some knowledge of Italian Renaissance art and the ability to read French, or consent of the instructor. One course. *Jenkins*

238. Sieneese Painting. Painting in Siena in the late Middle Ages and the Renaissance. Prerequisite: open to majors in history of art, or consent of the instructor. One course. *Jenkins*

239S. Architecture of Britain. After a summary of recent archaeological activity in the British Isles and a survey of mediaeval buildings, the course deals principally with changing architectural problems and their solutions from the advent of the Renaissance onward. Attention is given to the interests of students majoring in history or literature. Prerequisite: Art 61. One course. *Hall*

240S. Architecture of North America. A study illustrating the transplantation of European architectural customs since the sixteenth century; the time-lag in transit and acceptance of later European developments; the gradual assumption of confident independence in design; and the emergence of international leaders in the United States. Prerequisite: Art 61. One course. *Hall*

241. Problems in Latin American Art. Architecture, painting, sculpture, and other arts with emphasis on colonial architecture of Central America. Open to seniors who have a reading knowledge of Spanish and/or have had courses in Latin American history, economics, or literature. One course. *Markman*

247. Problems in the History of Graphic Arts. Selected topics in the history of prints and drawings. One course. *Mueller*

248. Florentine Painting During the Renaissance. Prerequisite: Art 137 or 138 or consent of the instructor. One course. *Covi*

249. Problems in Pre-Columbian Art and Archaeology. Architecture, sculpture, and other arts of the indigenous civilizations in Mexico, Central America, and the Andean region. Prerequisite: Art 149, apposite courses in anthropology or Latin American history, or consent of the instructor. One course. *Markman*

251S-252S. Research. A course designated to give instruction in methods used in the investigations of original problems. It is open to seniors by permission of the Director of Undergraduate Studies. Two courses. *Heckscher*

253S. Studies in Italian Renaissance Sculpture. Prerequisite: Art 137 or 138 or consent of the instructor. One course. *Covi*

255S, 256S. Iconological Problems. Subject matter and sources. Two courses. *Langedijk*

291S-292S. Museology Seminar. Operation of a museum; instruction in exhibition and restoration techniques, as well as registration and the researching of art objects with a view to exhibition accompanied by scholarly catalogues. Open to art majors or consent of the instructor. Two courses. *Heckscher and Staff*

293, 294. Special Problems in Art History. Individual study and research. Two courses. *Staff*

DESIGN

53-54. Beginning Studio. Experiment and practice with formal elements of composition in various media. Prerequisite: consent of the instructor. Two courses. *Pratt and Smullin*

151. Photography. Emphasis on interaction of technique, perception, and communication in making and responding to photographic images. Some work with view cameras furnished by the department; students must provide own hand camera. Prerequisite: consent of instructor. One course. *Menapace*

153, 154. Painting. Studio practice in painting with individual and group criticism and discussion of important historic or contemporary ideas in painting. Prerequisite: Art 53-54 or equivalent. Two courses. *Pratt*

155, 156. Advanced Drawing and Color. Prerequisite: Art 53-54 or equivalent. Two courses. *Pratt*

159, 160. Printmaking. Wood engraving, block printing, copperplate engraving, etching, aquatint, and drypoint. Prerequisite: Art 53-54. Two courses. *White*

161, 162. Sculpture. Realistic modeling in clay from the human model and work in abstract modes. Introduction to casting, carving, and welding. Second semester: independent problems. Prerequisites: Art 53-54, or equivalent and consent of the instructor. Two courses. *Smullin*

164. Ceramics. The design, production, and conceptualization of three-dimensional forms. One lecture and four studio hours each week. One course. *Stars*

173, 174. Advanced Painting. Prerequisites: Art 153 and 154. Two courses. *Pratt*

181, 182. Individual Project. Independent work open to highly qualified seniors on recommendation of the instructor and invitation of the department. Two courses.

DEPARTMENTAL MAJOR

The student will elect a sequence of courses emphasizing either the history of art or design. The department offers work leading to graduation with distinction. See the section on honors in this *Bulletin*.

MAJOR IN HISTORY OF ART

Prerequisites. Introduction to art history (two courses from the sequence 61 through 66).

Major Requirements. Eight courses in art history exclusive of 61 through 66 and including at least two courses at the 200-level. The Art Department requires art history majors to complete two years of college level study, or equivalent, of a foreign language. Students contemplating graduate study in art history are advised to acquire a reading knowledge of at least two foreign languages, one of which should be German.

MAJOR IN DESIGN

Prerequisites. Introduction to art history (two courses from the sequence 61 through 66).

Major Requirements. Five studio courses exclusive of Art 53-54.

Studio Fees. A fee of \$25.00 per semester will be required in all design courses, including Art 119, to cover materials used in each course. The fee is payable upon notification from the Bursar's Office at the beginning of each semester.

Asian and African Languages

CHINESE

131, 132. Intensive Elementary Chinese. Four hours of classroom work, two hours of language drill. Two courses. *Rolf*

133, 134. Intensive Intermediate Chinese. Four hours of classroom work, two hours of language drill. Two courses. *Rolf*

135, 136. Introduction to Modern Chinese Literature. Prerequisites: Chinese 133 and 134 or equivalent. Two courses. *Rolf*

HINDI-URDU

171, 172. Studies in Indian Literatures. Readings in translation. First se-

mester: classical Indian literary traditions. Second semester: literatures from Indian languages, including novels, poetry, and drama, with special reference to European literary influences. Two courses. *Shonek*

181, 182. Intensive Elementary Hindi-Urdu. Four hours of classroom work; two hours of language drill. Concentration on the acquisition of conversational ability in Hindi-Urdu, with a grammar and vocabulary basic to both Hindi and Urdu. Introduction to the Devanagari script and the reading of graded texts. Two courses. *Shonek*

183, 184. Intensive Intermediate Hindi-Urdu. Four hours of classroom work; two hours of language drill. Advanced conversation in Hindi-Urdu reading and composition. Prerequisite: elementary Hindi-Urdu. Two courses. *Shonek*

185, 186. Advanced Hindi Reading and Composition. An introduction to scholarly and literary Hindi prose and extensive practice in composition. Prerequisites: Hindi-Urdu 183, 184, or equivalent. Two courses. *Shonek*

200, 201. Special Studies in South Asian Languages. Intensive concentration in advanced Hindi reading and conversation, or specialized, graded work in cognate South Asian languages necessary for the advanced student contemplating field work in South Asia. Prerequisite: consent of instructor. Two courses. *Shonek*

JAPANESE

151, 152. Elementary Japanese. Four hours of classroom work, two hours of language drill. Two courses. *Rolf*

153, 154. Intensive Intermediate Japanese. Four hours of classroom work, two hours of language drill. Two courses. *Rolf*

155, 156. Introduction to Modern Japanese Literature. Prerequisite: Japanese 153, 154 or equivalent. Two courses. *Rolf*

161. Modern Japanese Fiction in Translation. Readings of twentieth century Japanese novels and short stories. One course. *Rolf*

SWAHILI

101, 102. Elementary Swahili. Three hours of classroom work, plus language drill. Two courses. *Dawson*

Astronomy

For courses in Astronomy, see *Physics*.

Biology

11-12. An Introduction to Biology. Adaptation and diversity of plants and animals; their evolution, ecology, structure, function, and significance to man and his environment. Open only to freshmen and sophomores who have had no more than one year of biological science in high school (entering freshmen will be given first priority). Lectures and laboratories. Two courses. *Staff*

11P, 12P. Preceptorials. Elective preceptorials for students enrolled in Biology 11, 12. *Staff*

14. An Introduction to Biology. Nature of plants and animals, their origin, evolution, and development. Introduction to major concepts and methodology

relevant to current problems. Open to freshmen with at least one year of biological science in high school and to all upperclassmen. Lectures and laboratories. (Offered in fall and spring terms.) One course. *Staff*

14P. Preceptorial. Elective preceptorial for students enrolled in Biology 14.

The above offerings, 11-12 and 14, may not both be taken for credit; either is an acceptable prerequisite for advanced courses. See other courses listed under *Botany* and *Zoology*.

Black Studies

Assistant Professor Burford, Director; Assistant Professors Gavins and Olela; Visiting Professor Jackson; Visiting Lecturer Allen

Black Studies is designed to provide instruction and study directed toward the particular experience of Black America and its concerns. Though intensive work (a major) is quite worthwhile and encouraged, Black Studies recognizes many of its course offerings as important to most students' primary fields of endeavor, as well as an essential component of a liberal arts education.

83, 84. Afro-American History. The Black experience in America from Slavery to the present. (Also listed as History 145, 146.) Two courses. *Gavins*

99. Dimension of Racism. The nature of racism, its interconnection with aspects and institutions of American life and its effects. One course. *Staff*

100. Philosophy of Black Liberation. One course. *Olela*

113. African Philosophy. Religious and political philosophy of twentieth century Africa. One course. *Olela*

125. Religion and Theology of Black America. Also listed as Religion 125.) One course. *Burford*

147. The Black in the City. (Also listed as Sociology 147.) One course.

150. Third World Literature. Selected works with special emphasis upon Black American, African, and Caribbean writers. One course. *Allen*

151. Classic Literature of Black America. Works by Black authors of the Negro renaissance followed by Wright's *Native Son* and Ellison's *Invisible Man*. One course. *Staff*

152. Contemporary Literature of Black America. Essays, poetry, and fiction by contemporary Black writers. One course. *Jackson*

176, 177. Marxism, and Black Liberation. Marxist perspective on the liberation of Black America. Two courses. *Olela*

189S. Special Topics. Spring 1973: Ethical Obligation and the Law. One course. *Olela*

191, 192. Independent Study. Two courses. *Staff*

193, 194. Independent Study in Community or Field Work. Two courses. *Staff*

195-196. Problems in Afro-American History. (Also listed as History 195V-196V.) Two courses. *Gavins*

209, 210. Afro-American History. Selected topics in Afro-American history from 1619 to present. (Also listed as History 209, 210.) Two courses. *Gavins*

THE MAJOR

1. Black Studies 99 and 100 required for major and strongly recommended as introductory to course work in Black studies.
2. Black History 83, 84 required.
3. Black Studies 193, 194 required. (It is suggested that the student seek his own community assignment and request approval.)
4. Three other courses above 100 to be selected with at least one being a seminar (one of which may include 193 or 194 but not both).

Students majoring in Black studies will receive special counselling in planning their course of study and in considering their future vocation.

Botany

Professor Wilbur, *Chairman*; Professor White, *Director of Undergraduate Studies*; Professors Anderson, Billings, Culberson, Hellmers, Johnson, Kramer, Naylor, Philpott, and Stone; Associate Professors Antonovics, Barber, Boynton, Knoerr, Searles, and Strain; Assistant Professors Blankley and Christensen; Lecturer C. F. Culberson

See *Biology* for listing of introductory courses.

53. Introductory Oceanography. Basic principles of physical, chemical, biological, and geological oceanography. Prerequisite: one year of a laboratory science and concurrent enrollment in a laboratory science. This course does not satisfy a distributional requirement in the natural sciences. (Also listed as *Geology 53.*) One course. Searles and Pilkey

63. Ecology and Man. Principles of populations, communities, and ecosystems with applications to human society. One course. Christensen or Strain

103. General Bacteriology. A study of the morphology and fundamental physiological processes of bacteria: their relationship to sanitation, public health, soil fertility, and food preservation. Prerequisite: introductory biology. One course. Johnson

105. Plant Diversity. Major groups of the living plants, their evolutionary origins and phylogenetic relationships. Prerequisite: introductory biology. One course. Culberson and White

151. Introductory Plant Physiology. The principal physiological processes of plants, including water relations, mineral nutrition, synthesis and use of foods, and growth phenomena. Prerequisites: introductory college biology and one year of chemistry; organic chemistry is desirable. One course. Naylor

152. Plant Identification. Practice in the identification of local plants and a study of the principles underlying plant classification. Laboratory, lectures, and field trips. One course. Wilbur

155. Plant Anatomy. A comparative study of basic cell types, tissues, and organs of vascular plants. Correlation of anatomical information with pertinent literature, application of anatomy to problems in systematics and evolution, and the interrelationship between structure and function. Prerequisite: one year of biology or permission of instructor. One course. White

156. Ecology of Plants. Principles of the relationships between plants and their environments. Structures and processes of ecosystems. Laboratory, lectures, and field trips. Prerequisite: introductory biology. One course. Billings, Christensen, or Strain

169. The Marine Environment. (For description see Marine Sciences.)

180. Principles of Genetics. Structure and properties of genes and chromosomes, and evolution of genetic systems. Prerequisites: introductory courses in biology, chemistry, and mathematics or equivalent. (Also listed as Botany 280, Zoology 180, and Zoology 280.) With or without laboratory. One course. Antonovics, Boynton, and Gillham (Zoology)

186. Evolution. Analyses of the processes of adaptation and diversification of individuals, populations, and genetic systems. Prerequisites: introductory biology and genetics, or consent of instructors; cytology is recommended. (Also listed as Zoology 186 and 286 and under the University Program in Genetics.) With or without laboratory. One course. Antonovics, Lundberg (Zoology) and H. Wilbur (Zoology)

191T, 192T, 193T, 194T. Independent Study. Directed reading and research. Open only to highly qualified students in the junior and senior years by permission of the department. Credits to be arranged. Staff

195S, 196S. Seminar in Botany. Credits to be arranged. Staff

203. Cytogenetics. Organization and variation of chromosomes in relation to genetics and evolution. Meiotic behavior and variations, chromosomal rearrangements, polyploidy, karyotype evolution, and mechanisms of chromosomal changes. Prerequisite: one year of biology. Laboratory optional, but limited to twelve students. One course. Anderson

206. Anatomy of Woody Plants. Primary and secondary structures in seedlings and in mature trees, shrubs, and vines. Preparation techniques for gross observations, and for study of micro and ultrastructures with light and electron microscopy. Relationship of microstructures to growth habits and physical properties of woody plant parts. Comparative studies in relation to ecological and systematic topics. (Also listed as Forestry 206.) Prerequisite: college botany or biology. One course. Philpott

209. Lichenology. Morphology, systematics, and biological and ecological implications of the lichens. Collection and identification of specimens and the use of lichen chemistry in taxonomy. One course. Culberson

210. Bryology. Morphological, systematic, and ecological characteristics of mosses and liverworts. One course. Anderson

212. Phycology. Morphological and ecological characteristics of common freshwater and marine algae and principles of their classification. One course. Searles

221. Mycology. Field and laboratory study of vegetative and reproductive structures of the fungi and slime molds. Methods of collection, isolation, propagation, and identification of the major orders as represented in local flora. Prerequisite: one year of biological science. One course. Johnson

225ST, 226ST. Special Problems. Students with adequate training may do special work in the following fields:

1. Cytology; Bryology. Anderson
2. Genetics. Antonovics
3. Ecology. Billings
4. Phycology. Blonkley
5. Genetics. Boynton
6. Ecology. Christensen
7. Lichenology. Culberson
8. Physiology. Hellmers
9. Bacteriology; Mycology. Johnson

10. Physiology. Naylor
11. Anatomy and Morphology of Vascular Plants. *Philpott*
12. Phycology. *Seorles*
13. Systematics of Flowering Plants. *Stone*
14. Ecology. *Strain*
15. Anatomy and Morphology of Vascular Plants. *White*
16. Systematics and Taxonomy of Vascular Plants. *Wilbur*

236S. Major Global Ecosystems. A study of a single global ecosystem such as arctic-alpine, desert, tropical rainforest, grassland or coniferous forest, including the place and effects of both primitive and modern man. One course. *Billings*

248. Introductory Biochemistry. The chemistry of proteins, lipids, carbohydrates, nucleic acids, and the metabolic interrelationships of these compounds. The biochemical basis of photosynthesis, genetics, vision, nutrition, nerve conduction, and muscle contraction will also be considered. Prerequisites: organic chemistry (second semester may be concurrent), college mathematics, or permission of instructor; Chemistry 61 is recommended. (Also listed as Biochemistry 247 and Zoology 248.) One course. *Sage*

250. Plant Biosystematics. Descriptive and experimental procedures in vascular plant evolution. Discussions on laboratory and field-oriented problems. Prerequisites: basic courses in systematics and genetics. One course. *Stone*

252. Plant Metabolism. The physiochemical processes and conditions underlying the physiological processes of plants. Prerequisite: Botany 151 or equivalent; organic chemistry is recommended. One course. *Naylor*

254. Plant-Water Relations. A study of factors affecting the availability of water, its absorption and use in plants, and the effects of water deficits on plant processes. Prerequisite: Botany 151 or equivalent. One course. *Kramer*

257. Principles of Plant Distribution. Interpretation of floristic and ecological plant geography. Prerequisite: Botany 156 or equivalent. One course. *Billings*

258. Physiology of Growth and Development. Consideration of the internal factors and processes leading to the production of new protoplasm and its differentiation at the cellular, tissue, and organ level in plants. Prerequisite: Botany 151 or equivalent; organic chemistry is recommended. One course. *Naylor*

259. The Environment. Environmental principles; methods of obtaining and evaluating environmental data for ecological purposes with special attention to instrumentation and microclimate. Prerequisite: Botany 156 or equivalent. One course. *Billings*

265. Physiological Plant Ecology. The physiological approach to interpreting adaptation in plants, with emphasis on terrestrial seed plants. One course. *Strain*

266. Analysis and Classification of Vegetation. The concepts and methods of synecology; modern approaches with a review of historical aspects. One course. *Christensen*

285. Population Genetics. A seminar and lecture course devoted to the analysis of the current literature in population genetics. Prerequisites: genetics or Botany 280 or equivalent and consent of the instructor. One course. *Antonovics*

MARINE LABORATORY

Botany 204, Marine Microbiology is offered in alternate years at the Duke University Marine Laboratory, Beaufort, N. C.; Botany 211, Marine Phycology is offered annually. The Department of Botany also participates in the spring term program at the Marine Laboratory. Consult the *Bulletin of the Marine Laboratory* for further information.

THE UNIVERSITY PROGRAM IN GENETICS

Genetics courses offered by the Botany Department are an integral part of this interdepartmental program. Refer to the announcement in this *Bulletin* under *Genetics, the University Program* for description of the other offerings.

DEPARTMENTAL MAJOR

For the A.B. Degree

Prerequisites. Introductory college biology or advanced placement in botany; two semesters of introductory chemistry for science majors or advanced placement in chemistry; one semester of college mathematics or equivalent.

Major Requirements. A minimum of 8 approved science courses in addition to the prerequisites; at least 5 courses to be selected from the following: Botany 105 (Plant Diversity), 151 (Plant Physiology), 152 (Plant Identification), 155 (Plant Anatomy), 156 (Plant Ecology), and 180 (Genetics). With the approval of the Director of Undergraduate Studies, one or two of the remaining science courses may be taken in a related department.

A student's particular program will be tailored to his interests and plans for the future.

For the B.S. Degree

Prerequisites. Introductory college biology or advanced placement in botany; chemistry through organic; two terms of college mathematics or equivalent.

Major Requirements. Eight science courses as described under major requirements for the A.B. degree. A proficiency in reading German or Russian or two years of college German or Russian. One year of college physics or equivalent, and a course in statistics are recommended.

The emphasis in this preprofessional program will depend on the student's interests, and specific programs will be arranged on an individual basis.

Interdepartmental Concentration

By joint consent of the appropriate departments, an interdepartmental program (e.g., in cell and molecular biology, physical biology, marine biology etc.) may be pursued instead of a departmental major. The Director of Undergraduate Studies will arrange administrative responsibility for reasonable interdepartmental programs.

Canadian Studies Program

Professor Preston, Director and Chairman of the Canadian Studies Committee

The program of Canadian studies is designed to provide the student with an understanding of Canada and its problems and prospects. In the Canadian Studies Program, completion of which would be imprinted on the official record upon graduation, a student must take, in addition to two years or the equivalent of college-level French, 6 courses with Canadian content or the equivalent thereof (see below). These must include the Interdisciplinary Course, Canada: Problems and Issues of an Advanced Industrial Society, in which members of the Departments of History, Political Science, Economics, Sociology, and Romance Languages, and visiting Canadian specialists participate. The program in Canadian studies may be taken as part of a major in history and political science, as a supplement to any other major, as part of an interdepartmental concentration, or under Program II. For a description of the courses consult listings under Interdisciplinary Courses and the specified departments.

Courses with Full Canadian Content. The following courses count as 1 full course in the 6 required for the Canadian studies option:

Interdisciplinary Course 184S. Canadian Problems and Issues. *Preston, Goodwin, Kornberg, Hull, Smith, Leach, and Visitors*

History 183S. History of Canada. *Preston*

Political Science 195. Canadian Political Behavior in an American Perspective. *Kornberg*

French 125. The French of Canada. *Hull*

Courses with a Significant Canadian Content. Two of them will count as 1 full course toward the 6 required for the Canadian studies option.

Political Science 277. Comparative Party Politics. *Kornberg*

Political Science 200SB. Comparative Government and Politics Seminar. *Cole*

Political Science 225. Comparative Government and Politics. *Cole*

Political Science 293. Federalism. *Leach*

Law 277. International Law. *Grzybowski*

History 297. British Empire. *Preston*

History 298. Commonwealth. *Preston*

Economic Geography 116S. North America. *Tuthill*

Information about certain other courses which would enrich a program in Canadian studies may be obtained from the Director of Canadian Studies. A limited amount of financial aid for field work in Canada is available for undergraduates in the Canadian Studies Program.

Chemistry

Professor Quin, *Chairman*; Professor Wells, *Director of Undergraduate Studies*; Associate Professor Bonk, *Supervisor of Freshman Instruction*; Professors Bradsher, Chesnut, Hobbs, Jeffs, Krigbaum, McPhail, Parham, Poirier, Smith, Strobel, and Wilder; Associate Professors Henkens and Palmer; Assistant Professors Baier, Baldwin, Crumbliss, Gutknecht, Lochmüller, and Porter

1, 2. General Chemistry. For students not intending to pursue additional courses in chemistry. Students intending to take additional courses in chemis-

try must take Chemistry 11-12. Chemistry 1, consisting of three lectures and one discussion class, emphasizes the principles of chemistry; Chemistry 2, consisting of two lectures, one recitation, and one three hour laboratory, emphasizes organic and biochemistry. Prerequisite: two years of high school mathematics. Chemistry 1 or its equivalent is a prerequisite for Chemistry 2. Two courses. *Staff*

11, 12. Principles of Chemistry. A rigorous introductory course for students who intend to take additional courses in the department. Credit cannot be received for both sequences 1-2 and 11-12. Chemistry 11 emphasizes stoichiometry and atomic and molecular structure. Chemistry 12 emphasizes thermodynamics, chemical kinetics, synthesis, and analysis. Laboratory work includes both qualitative and quantitative analysis. Two lectures, one recitation and one four hour laboratory. Prerequisites: one year of high school chemistry and qualification for Mathematics 31. Two courses. *Bonk and Staff*

117. Inorganic Chemistry. Bonding, structures, and reactions of inorganic compounds studied through physical chemical concepts. Three lectures. Prerequisite: Chemistry 161. One course. *Crumbliss, Palmer, and Wells*

132. Quantitative and Instrumental Analysis. Practice in advanced quantitative analysis and in the use of chemical instrumentation. Theoretical and applied aspects of chemical and instrumental methods. Three lectures and four and one-half laboratory hours. Prerequisite: Chemistry 161. One course. *Gutknecht, Lochmüller, and Strobel*

151, 152. Organic Chemistry. The structures and reactions of the compounds of carbon. First semester laboratory: techniques of separation and structure determination. Second semester: organic reactions and preparations. Three lectures and four laboratory hours. Prerequisite: Chemistry 12 or the permission of the Director of Undergraduate Studies. Chemistry 151 is a prerequisite for 152. Two courses. *Baldwin, Bradsher, Parham, Porter, Quin, and Wilder*

152P. Preceptorial. Elective preceptorial for students in Chemistry 152. *Staff*

155. Qualitative Organic Analysis. Systematic identification of organic compounds based upon a study of physical and chemical properties. Infrared, ultraviolet, and NMR spectra are used in elucidation of structure. Two lectures and six laboratory hours. Prerequisite: Chemistry 152. One course. *Porter and Quin*

161, 162. Physical Chemistry. Fundamentals of theoretical chemistry illustrated by selected laboratory experiments. Two lectures, one recitation, and four laboratory hours. Prerequisites for 161: Chemistry 152, Physics 51, 52, and Mathematics 32. Prerequisites for 162: Chemistry 161 and either Mathematics 103 or permission of the instructor. Two courses. *Chesnut, Henkens, Hobbs, Krigbaum, McPhail, Poirier, and Smith*

191, 192. Independent Study. Supervised reading and research. Open to students by permission of the department. Two courses. *Staff*

193, 194. Independent Study. Supervised reading and research. Open to students who have completed Chemistry 191, 192, and by permission of the department. Two courses. *Staff*

195S. Seminar. Organic chemistry of natural products. Open to senior chemistry majors, and by permission of the department. One course. *Staff*

196S. Seminar. Selected topics in physical chemistry of biological mac-

romolecules. Open to senior chemistry majors, and by permission of the department. One course. *Henkens*

201. Molecular Spectroscopy. Selected spectroscopic methods in the study of molecular structure. Symmetry and group theoretical basis for selection rules, theories of magnetic and optical resonance, and interpretation of spectra; examples from both inorganic and organic chemistry. Three lectures. Prerequisite: permission of the department. One course. *Staff*

203. Quantum Chemistry. Basic principles of quantum and group theoretical methods. Topics include symmetry, a review of the fundamentals and the mathematical foundation of quantum theory. Emphasis on the application of molecular orbital theory to organic and inorganic systems. Three lectures. Prerequisite: permission of the department. One course. *Staff*

205. Structure and Reaction Dynamics. Structure and mechanisms in organic and inorganic compounds, substitution reactions, linear free energy relations, and molecular rearrangements. Emphasis on the use of kinetic techniques to solve problems in reaction mechanisms. Three lectures. Prerequisite: permission of the department. One course. *Staff*

207. Principles of Thermodynamics, Diffraction, and Kinetics. Three lectures. Prerequisite: permission of the department. One course. *Staff*

240. Chemical Oceanography. Distribution, alteration, and transport of chemical species in the marine environment. Prerequisites: a year of physical chemistry (Chemistry 161, 162, or equivalent); statistics (Mathematics 183, or equivalent), or permission of the instructor. Given at Beaufort and includes lectures, laboratory work, and field trips. One and one-half courses. *Baier*

DEPARTMENTAL MAJOR

For the A.B. Degree

Prerequisites. Chemistry 11 and 12 or advanced placement; Mathematics 31, 32; Physics 51, 52.

Major Requirements. Chemistry 132, 151, 152, 161, and 195S-196S. Possible alternatives to 195S-196S are:

1. Students may specifically request Chemistry 191-192, provided they pursue an enriched program in the area of their proposed research. An enriched program would include at least one chemistry course at the 200-level or Chemistry 117 or Chemistry 155 or Chemistry 162. The permission of the proposed research director and the independent study coordinator would be required.

2. Students may pursue their two courses of independent study or seminar outside the department in a biological or physical science, and in this case they would be required to complete the major by taking one additional chemistry course at the 200-level or Chemistry 117 or Chemistry 155 or Chemistry 162.

Recommended. Computer Science 51; Mathematics 103; two semesters of a foreign language or the equivalent.

For the B.S. Degree

Prerequisites. Chemistry 11 and 12 or advanced placement; Mathematics 31, 32, 103; Physics 51, 52; two semesters of German or Russian, or the equivalent.

Major Requirements. Chemistry 117, 132, 151, 152, 155, 161, 162, 191-192,

and 203 or 207. Bachelor of Science majors in interdisciplinary or double major programs may elect independent study in one of their fields.

Recommended. Physics 161; Mathematics 104; Computer Science 51.

Students planning graduate study in chemistry should complete one college year (or its equivalent) of a second language usually chosen from one of the above or French, and take additional courses in mathematics and physical sciences (see departmental adviser).

Classical Studies

Professor Oates, *Chairman*; Assistant Professor Rigsby, *Director of Undergraduate Studies*; Professors Newton, Richardson, Truesdale, and Willis; Associate Professor Stanley; Assistant Professors Burian and Nixon; Visiting Lecturer Levy

GREEK

1-2. Elementary Greek. A study of grammar and an introduction to reading. Two courses. *Willis*

63-64. Intermediate Greek. Introduction to Greek prose and poetry. First semester: Plato's *Apology of Socrates* and two dialogues. Second semester: two plays of Euripides. Two courses. *Truesdale*

87, 88. Sight Reading in Greek Prose. Readings from easy Attic prose writers. Open to students who have completed one year of college Greek, or the equivalent, with consent of the instructor. Two hours per week throughout the year. Two half-courses. *Truesdale*

95S. Seminar in Greek: Homer.* One course. *Stanley*

96S. Seminar in Greek: The Lyric Poets.* One course. *Stanley*

97S. Seminar in Greek: Tragedy* One course. *Burian*

98S. Seminar in Greek: Comedy.* One course. *Burian*

99S. Seminar in Greek: The Historians. One course. *Nixon*

100S. Seminar in Greek: The Orators. One course. *Burian*

117. Greek Prose Composition. The character of the course is determined by the needs of the students enrolled. Half-course. *Truesdale*

181S, 182S. Greek Seminar. An intensive introduction to the language and literature. Meets five times a week. Open only to students who have achieved proficiency in another language. Two courses each. *Staff*

191, 192. Independent Study. Directed reading and research. Open only to highly qualified juniors and seniors. Two courses. *Staff*

193, 194. Directed Research in Greek. Research culminating in the writing of one longer or two shorter papers as partial fulfillment of the requirements for graduation with distinction. Open only to senior majors. Two courses. *Staff*

198S, 199S. Senior Seminar in Greek. The seminar will change according to the interests of the instructor. Two courses. *Staff*

*Not offered in 1974-1975.

For Seniors and Graduates

200. Graduate Reading. Open to qualified undergraduates by permission of instructor. One course. *Truesdale*

203. Homer.* The *Iliad* and *Odyssey*; the problems of language and structure in the epic; present state of Homeric scholarship. One course. *Truesdale*

205. Greek Lyric Poets. Fragments of the early lyric poets; selected odes of Pindar and Bacchylides. One course. *Truesdale*

206. Aeschylus.* The *Oresteia*, with study of the form of *Agamemnon* and its place in the design of the trilogy. One course. *Willis*

208. Sophocles. The Theban plays; the structure and style of Sophoclean tragedy. One course. *Stanley*

209. Euripides.* Representative tragedies in their political and philosophical context; analysis of dramatic form and texture. One course. *Stanley*

210. Aristophanes.* Origin and development of Greek comedy; representative plays of Aristophanes. One course. *Truesdale*

221. Early Greek Prose.* Greek prose in the fifth century from the Ionian scientists and logographers to Herodotus; Gorgias, Antiphon, and the Old Oligarch. One course. *Willis*

222. Thucydides.* The *History*; Thucydides' historical method and style. One course. *Willis*

223. Greek Orators I.* Early fourth century rhetoric, including Andocides, Lysias, and Isocrates. One course. *Staff*

224. Greek Orators II.* Aeschines' *Against Ctesiphon* and Demosthenes' *On the Crown* in the light of fourth century political history and rhetorical development. One course. *Willis*

225. Plato.* Selected dialogues and related passages illustrating the development of philosophical topics and stylistic motifs. One course. *Stanley*

231. Hellenistic Poetry. The principal lyric, elegiac, pastoral, and didactic poets of Alexandria; emphasis on Callimachus and Theocritus. One course. *Stanley*

241. Advanced Prose Composition. Xenophon, Lysias, and other prose authors as models of style and practice in the writing of Attic prose. Half-course. *Willis*

LATIN

1-2. Elementary Latin. Study of the structure of the language (inflections, vocabulary, syntax, and pronunciation). Second semester: reading in prose and poetry. Two courses. *Staff*

63. Intermediate Latin. Selected prose. One course. *Nixon*

64. Intermediate Latin: Vergil. Readings from the *Aeneid*; lectures on the epic and its history and Vergil's style and technique. One course. *Nixon*

87, 88. Sight Reading in Classical, Mediaeval, and Renaissance Latin. Offered especially for students in fields other than classical studies who wish to maintain and refresh their Latin. Two hours per week throughout the year. (Open to students enrolled in other courses in Latin only on the recommendation of their instructors.) Two half-courses. *Staff*

*Not offered in 1974-1975.

90. Not a course. This number represents one course credit for advanced placement. One course of advanced placement will be awarded for scores of 4 or 5 or one or more of the College Board Advanced Placement tests in Latin. One course credit may be earned by a score of 3 if the student successfully completes one further semester of Latin.

95S. Seminar in Latin: Ovid.* One course. Newton

96S. Seminar in Latin: Lucretius. One course. Richardson

97S. Seminar in Latin: The Lyric and Elegaic Poets. One course. Richardson

98S. Seminar in Latin: The Historians.* One course. Staff

99S. Seminar in Latin: Comedy.* One course. Richardson

100S. Seminar in Latin: The Novel.* One course. Richardson

117. Latin Prose Composition. The character of the course is determined by the needs of the students enrolled. Half-course. Staff

181S, 182S. Latin Seminar. An intensive introduction to the language and literature. Meets five times a week. Open only to students who have achieved proficiency in another language. Two courses each. Staff

191, 192. Independent Study. Directed reading and research. Open to highly qualified juniors and seniors. Two courses. Staff

193, 194. Directed Research in Latin. Research culminating in the writing of one longer or two shorter papers as partial fulfillment of the requirements for graduation with distinction. Open only to senior majors. Two courses. Staff

198S, 199S. Senior Seminar in Latin. The seminar will change according to the interests of the instructor. Two courses. Staff

For Seniors and Graduates

200. Graduate Reading. Open to qualified undergraduates by permission of instructor. One course. Stanley

201. The Verse Treatise. The genre of didactic poetry; emphasis on Lucretius' *De Rerum Natura*, Vergil's *Georgics*, and Ovid's *Ars Amatoria*; attention to Cicero's *Aratea*, the *Astronomica* of Manilius, Horace's *Ars Poetica*, and Ovid's *Fasti*. One course. Richardson

202. Roman Satire. A survey of the genre with concentration on Horace, Juvenal, and Persius. One course. Staff

203. Epic: Vergil.* The *Aeneid*. One course. Staff

204. Epic: Lucan and Statius. The development of the Roman epic in the Silver Age. One course. Staff

207. The Prose Epistle.* The letter as a vehicle of communication and as a literary form. One course. Richardson

208. The Epistle in Verse.* The letter as a literary form; reading in the *Epistles* of Horace, the *Heroides* of Ovid, and Statius. One course. Staff

209. Fragments of Early Latin.* The remains of Latin poetry of the third and second centuries B.C., from Livius Andronicus to Lucilius, with emphasis on the epic and drama of Ennius. One course. Stanley

*Not offered in 1974-1975.

210. Lyric and Occasional Poetry.* Shorter verse forms: epigram, pastoral, song, and panegyric. One course. *Staff*

211. Roman Oratory I.* The literary history and criticism of Roman oratory. One course. *Richardson*

212. Roman Oratory II.* A continuation of Latin 211. One course. *Staff*

221. Mediaeval Latin I. Latin literature of late antiquity, from Prudentius to the Carolingian Revival. One course. *Newton*

222. Mediaeval Latin II.* Literature in Latin from Charlemagne to the Renaissance. One course. *Newton*

225. Latin Palaeography. Latin book hands from the Roman Empire to the Italian Renaissance. One course. *Newton*

241. Advanced Latin Composition. Experiments in imitation of the great Latin prose styles and introduction to the composition of verse. Half-course. *Richardson*

CLASSICAL STUDIES

51. Greek Literature in English Translation. Reading in translation of major Greek authors, with emphasis on the Homeric epic and the Attic drama. One course. *Burian and Truesdale*

52. Latin Literature in English Translation. Reading in translation of major Roman authors, such as Plautus, Terence, Vergil, Horace, Ovid, Petronius, Juvenal, Tacitus, and Apuleius. One course. *Burian*

53. Greek History. The political and intellectual history of the Hellenes from earliest times to the death of Alexander the Great. One course. *Nixon*

54. Roman History. The Roman republic and empire to the Council of Nicaea. One course. *Nixon*

55. Greek Art and Archaeology. Greek architecture, sculpture, and painting from the Bronze Age to the classical period. Study of objects in the Duke Classical Collection is included. One course. *Richardson*

56. Roman Art and Archaeology. Rome's achievement in architecture and decoration, portraiture, and relief sculpture; from the Villanovans to the Antonine emperors. One course. *Richardson*

57S, 58S. Seminar in Classical Studies. Aspects of the history, art, and literature of classical Greece and Rome. For freshmen and sophomores. Two courses. *Rigsby*

114. Greek Drama. Reading in English translation of Aeschylus, Sophocles, Euripides, Aristophanes, and Menander. (Not open to students who have taken Classical Studies 51.) One course. *Truesdale*

115. The Classical Tradition. The notion of the "classical" from the creation of the archetype to the present. One course. *Burian*

117. Ancient Mythographers. Myth in classical and mediaeval writers from Hesiod to Boccaccio. One course. *Newton*

134. The Athenian Empire.* Imperial democracy at Athens and its consequences for the polis. One course. *Oates*

135. Alexander the Great.* His career and the effects of his conquests. One course. *Oates*

*Not offered in 1974-1975.

136. The Hellenistic Kingdoms. The Greek world from the death of Alexander in 323 B.C. to the end of the second century B.C. One course.

137. The Roman Revolution.* Rome from the time of the Gracchi (133 B.C.) to the death of Augustus (14A.D.). One course. *Rigsby*

138. The Decline and Fall of Rome.* Rome from the death of Commodus to the accession of Constantine. One course. *Rigsby*

143. The Ancient Cities of Greece.* The polis as a physical and societal complex; urban problems and their solutions through the centuries. A different Greek city that has been extensively excavated and well published is chosen as representative of each century and examined in detail. One course. *Richardson*

144. Ancient Cities: Rome and Her Colonies.* As a metropolis and a cosmopolis; the sources and uses of significant architectural and urbanistic ideas; the city government and organization of the megalopolis; Roman colonies throughout the Empire. One course. *Richardson*

191, 192. Independent Study. Directed reading and research. Open only to highly qualified juniors and seniors. Two courses. *Staff*

193, 194. Directed research in classical studies. Research culminating in the writing of one longer or two shorter papers as partial fulfillment of the requirements for graduation with distinction. Open only to senior majors. Two courses. *Staff*

195S, 196S. Junior Seminar in Classical Studies. The seminar will change each year according to the interest of the instructor. Two courses. *Nixon*

For Seniors and Graduates

231. Greek Sculpture.* Techniques and style of the major schools and personalities in archaic, classical, and Hellenistic free-standing and architectural sculpture. One course. *Stanley*

232. Greek Painting.* Techniques and style in the various media; emphasis on the problems of chronology, attribution, and iconography of Attic pottery. One course. *Stanley*

235. Roman Architecture.* Significant monuments chosen to exemplify the Roman genius in building in the late Republic and early empire. One course. *Richardson*

236. Roman Painting.* Roman pictorial art with concentration on the wallpainting from Campania. Investigation of techniques, iconography, and use of pictures in decoration. One course. *Richardson*

253. Greece to the Orientalizing Period.* One course. *Oates*

254. The Age of the Tyrants and the Persian Wars.* One course. *Oates*

255. The Age of Pericles.* One course. *Oates*

256. The Fourth Century through Alexander.* One course. *Oates*

260. The History of Rome to 164 B.C.* One course.

261. The Roman Revolution, 146-30 B.C.* One course. *Oates*

262. Rome under the Julio-Claudians.* One course. *Staff*

263. From the Flavian Dynasty to the Severan.* One course. *Nixon*

264. From Septimius Severus to Constantine.* One course. *Nixon*

*Not offered in 1974-1975.

270. The Rise of the Hellenistic Kingdoms.* One course. Oates

271. The Hellenistic World, 250-31 B.C.* One course. Oates

DEPARTMENTAL MAJOR IN GREEK

Prerequisite. Greek 2 or equivalent.

Major Requirements. Six courses in Greek above the level of Greek 2. In addition, students will be required to pass an examination testing proficiency in Greek composition or to complete Greek 117.

Related Work. Greek majors normally take at least four semesters of Latin, and are also encouraged to take course work in ancient history and/or archaeology. The nature and amount of related work, however, may vary with the student.

DEPARTMENTAL MAJOR IN LATIN

Prerequisite. Latin 64 or equivalent.

Major Requirements. Six courses in Latin above the level of Latin 64. In addition, students will be required to pass an examination testing proficiency in Latin composition or to complete Latin 117.

Related Work. Latin majors normally take at least four semesters of Greek, and are also encouraged to take course work in ancient history and/or archaeology. The nature and amount of related work, however, may vary with the student.

DEPARTMENTAL MAJOR IN CLASSICAL STUDIES (ANCIENT HISTORY AND ARCHAEOLOGY)

Prerequisites. Classical Studies 51-52, 53-54, 55-56, or 57S-58S.

Major Requirements. Eight courses at the 100-level or above, including two courses of seminar or independent study, or a combination of these. Reading knowledge of Latin or Greek to the level of Latin 64 or Greek 64. Two courses in the ancient languages above that level may be counted toward the major.

Majors in either Greek or Latin who contemplate graduate work are reminded of the necessity for competence in both languages for all higher degrees and of the requirement for a reading knowledge of French and German (usually an examination in one of these languages must be passed in the first year of graduate work and an examination in the other the second year).

Majors are eligible for nomination to a term of one semester during their junior year at the Intercollegiate Center for Classical Studies in Rome, of which Duke University is a founding member, at a cost comparable to that of a semester at Duke. Financial arrangements are made through the University, and students may apply for scholarship assistance. Courses in Greek, Latin, ancient history, and archaeology taken at the Center are counted toward the degree requirements of the Department of Classical Studies. For further information, see section on study abroad.

The department offers work leading to graduation with distinction. See the section on Honors in this *Bulletin*.

Comparative Area Studies: Africa, Asia, Latin America, and Russia

Professor Silberman (History), Director; Professors Bronfenbrenner (Economics), TePaske (History), Tiryakian (Sociology), and Trembl (Economics);

*Not offered in 1974-1975.

Associate Professors Di Bona (Education), Hartwig (History), and Johns (Political Science); Assistant Professors Corless (Religion), Dirlik (History), Mook (Political Science), O'Barr (Anthropology), and Valenzuela (Political Science)

The aim of the comparative area studies major is to introduce the student to the problems of contemporary societies outside of Western Europe and the United States through a study of interactions between traditional features of the societies and the forces of social and political change. Special attention is given to institutional characteristics of the differing societies. The great diversity of traditional institutions in the different societies that form the basis for the major provides opportunities for examination of intellectual, political, economic, religious, and social movements primarily in the areas of Africa, Asia, Latin America, and Russia. The major is under the supervision of a committee consisting of faculty members from departments with relevant area interests.

THE MAJOR

The student must identify his primary disciplinary interest and his geographic area of interest. This will normally be done at the end of the sophomore year, but if fulfillment of requirements is possible, this may be done at a later stage. Students should consult the Director before declaring a major because of the program's complexity.

A special feature of the major is the provision for the granting of credit to students who wish, and who are qualified, to study abroad in the area of choice or who undertake intensive summer language programs in the United States.

For a description of the following courses consult the listings under the specified department.

Prerequisites. Any two of the following courses: History 175D, 176D; Anthropology 94; Religion 57. Four semester-courses in the language of the area of concentration, two of which may be a continuation of the language, or two of the following: literature of the area in translation or general linguistics. Students identifying Africa as their area of interest may offer a relevant European language (other than English) in place of an African language. The language-literature prerequisite need not be completed before the declaration of the major.

Major Requirements. Four semester-courses in the geographic area of interest (the area of the language studied). Two semester-courses in a second geographic area included in the major; senior seminar in comparative area studies.

The following area courses currently available for the fulfillment of the major prerequisites and requirements are:

LANGUAGE AND LITERATURE

Anthropology 240S, 259S, 260S, 261S.

Black Studies 113, 150, 189.

Chinese 131-132, 133-134, 135-136.

English 107.

German 219.

Hindi-Urdu 171-172, 181-182, 183-184, 185-186, 200-201.

Japanese 131-132, 133-134, 135-136.

Portuguese 181-182, 185-186.

Slavic 1-2, 63-64, 66, 105, 119, 120, 124, 179, 180, 184, 185, 201, 202, 207, 212S, 213, 214, 215, 216, 225S, 227, 230, 232, 236S, 191, 192, 193, 194.

AREA COURSES

Anthropology 121, 122, 124, 125, 128, 134, 164, 220S, 222S, 240S, 260, 193.

Art 149, 150, 191T, 192T, 193T, 194T.

Black Studies 189.

Economics 114, 120, 214, 219, 286S, 293, 294, 191, 192, 193, 194.
 Education 202, 218, 219.
 History 115, 116, 117, 118, 119, 120, 127, 128, 131, 141, 142, 143, 147, 148, 152, 155, 156, 161, 162, 201-202, 219, 231-232, 233-234, 240, 241-242, 247, 248, 255S-256S, 261-262, 265-266, 287-288, 290, 297-298, 191, 192, 193, 194, 195G-196G, 195J-196J, 195S-196S, 195T-196T, 195W-196W, 195X-196X, 195Y-196Y.
 Political Science 117, 120, 122, 135, 151, 152S, 155, 161S, 165S, 166S, 180, 181, 182S, 235, 250, 253, 271, 280, 191, 192, 193, 194.
 Religion 113, 140, 141, 142, 143, 149, 217, 218, 283, 285, 286, 287, 288, 289, 191, 192, 193, 194.
 Sociology 136, 251, 255, 259.
 Interdisciplinary 101, 102.

Comparative Literature

Professor Salinger (German), *Chairman of the Committee on Comparative Literature*; Professors Anderson (English), Fowlie (Romance Languages), Liewsay (English), Newton (Classical Studies), Reiss (English), Tetel (Romance Languages), and Wardropper (Romance Languages); Associate Professors Clubbe (English), Harwell (English), Jezierski (Slavic Languages), Krynski (Slavic Languages), and Reardon (English); Assistant Professor Burian (Classical Studies); Lecturer Shonek (Hindi-Urdu)

100. Introduction to Comparative Literature. History, prevailing approaches, methods of investigation, problems of literary influence and translation; European and American movements and genres. Occasional guest lecturers. One course. *Staff*

112. English Literature of the Middle Ages. (Also listed as English 112.) One course. *Reiss*

115. The Classical Tradition. (Also listed as Classical Studies 115.) One course. *Burian*

117. Ancient Mythographers. (Also listed as Classical Studies 117.) One course. *Newton*

124. Comparative Humanism. (Also listed as Romance Languages 114.) One course. *Tetel*

151. Theory and Form of Tragedy. One course. *Fowlie*

161. The European Background of English Literature. (Also listed as English 161.) One course. *Harwell*

163, 164. Readings in European Literature. (Also listed as English 163, 164.) Two courses. *Clubbe*

165. Readings in Scandinavian Literature. (Also listed as English 165.) One course. *Anderson*

169. Modern European Drama. (Also listed as English 169.) One course. *Reardon*

171, 172. Studies in Indian Literatures. (Also listed as Hindi-Urdu 171, 172.) Two courses. *Shonek*

186. Non-Russian Slavic Literatures. (Also listed as Slavic Languages and Literatures 186.) One course. *Jezierski*

191, 192. Independent Study. Directed reading and research. Open only to qualified students in the junior year, by permission. Two courses. *Salinger*

193, 194. Independent Study. Directed readings and research. Open only to qualified students in the senior year, by permission. Two courses. *Salinger*

201, 202. Romanticism. Studies in the origin, rise, and development of the Romantic Movement in the chief literatures of the Western world. The approach is comparative; the principal emphasis will be on England, France, and Germany, with some reference to other countries. Selected subjects will occasionally be covered by speakers from various departments of the University. Two courses. *Salinger*

203, 204. Realism and Symbolism. Comparative studies in the literatures of England, France, Germany, Russia, the Scandinavian countries, Spain, and Italy, tracing the decline of romantic individualism and the reappraisal of man's significance against the social background. Selected subjects will occasionally be covered in lectures by speakers from various departments of the University. Two courses. *Salinger*

205. Foundations of Twentieth Century European Literature. The roots of the contemporary scene (Proust, Mann, Rilke, Kafka, Lorca, Lagerkvist, Gide, Camus, Hesse) evolving toward a mythology of man. One course. *Salinger*

206. Autobiography. Origins and developments in the chief European literatures, including autobiographies of St. Augustine, Montaigne, Bunyan, Rousseau, Goethe, Carlyle, Mill, Nietzsche, Yeats, and Jung. One course. *Clubbe*

213, 214. The Slavs: Literature and Culture. (Also listed as Slavic Languages and Literatures 213, 214.) Two courses. *Krynski*

285. Literary Criticism. (Also listed as English 285.) One course. *Lievsay*

MAJOR IN COMPARATIVE LITERATURE

Prerequisite. A reading knowledge of at least one foreign language; English 55, 56 or the equivalent.

Major Requirements. (1) Reading knowledge of a second foreign language; (2) three courses in a single foreign literature, to be read in the original (committee approval required); (3) Comparative Literature 100 and two other comparative literature courses, at least one of which must be a 200-level course.

The Committee on Comparative Literature will assist the major in creating a program having unity and direction. The committee will also advise the student of pertinent conference courses and seminars offered each year in the various literature departments. Inquiries may be directed to Professor Salinger, Chairman of the Committee on Comparative Literature, 106 Languages Building

Computer Science

Professor Loveland, *Chairman*; Assistant Professor Ramm, *Director of Undergraduate Studies*; Professors Gallie, Marinos, Naylor, Nolte, and Woodbury; Associate Professors Hammond, Patrick, and Starmer; Assistant Professors Biermann and Gerhart; Instructor McAnulty; Adjunct Associate Professors Spragins and Williams

The Department of Computer Science provides courses on the concepts of computing and computers, their capabilities and uses. Most courses require the student to make extensive use of one or more of the available computers as a problem-solving instrument.

Students who wish to take a single introductory course in computer science, as part of their general education, usually elect Computer Science 51.

42. Introduction to Digital Systems. (For description, see Electrical Engineering 42.) One course. *Marinos*

51. Introduction to Digital Computation. Flow charts; an assembly language; program structures, subroutines, data structures, arrays, polynomials; an algorithmic language; numerical linear algebra, matrix inversion, linear programming, and least-squares techniques. (Also listed as Mathematics 51.) One course. *Gollie and Stoff*

51P. Preceptorial. Elective preceptorial for students enrolled in Computer Science 51. *Staff*

71. Discrete Systems Analysis. (For description, see Biomedical Engineering 71.) One course. *Pilkington*

150. Computers and Programming. Computer structure, machine language, instruction execution, addressing techniques, and digital representation of data. Computer systems organization, logic design, micro-programming, and interpreters. Symbolic coding and assembly systems, macro definition and generation, and program segmentation and linkage. Prerequisite: Computer Science 51. One course. *Staff*

150P. Preceptorial. Elective preceptorial for students enrolled in Computer Science 150. *Staff*

152. List Processing and Data Structures. Linear lists such as stacks, queues, deques, circular lists, and doubly linked lists; trees; multilinked structures; dynamic storage allocation. Exercises may require use of an assembly language. Prerequisite: Computer Science 150. (Also listed as Mathematics 152.) One course. *Staff*

152P. Preceptorial. Elective preceptorial for students enrolled in Computer Science 152. *Staff*

157. Introduction to Switching Theory. (For description, see Electrical Engineering 157.) One course. *Marinos*

161. Numerical Solution of Ordinary Differential Equations. (For description, see Mathematics 161.) One course. *Murroy*

163. Data Analysis. Elements of probability and statistics, acquisition of data, maintenance of data bases, computation and display of statistical summaries. Prerequisites: Computer Science 51 and Mathematics 31 or equivalent. One course. *Woodbury*

191, 192. Independent Study. Directed reading and research for qualified juniors. Prerequisite: permission of instructor and Director of Undergraduate Studies. Two courses. *Staff*

193, 194. Independent Study. Directed reading and research for qualified seniors. Prerequisite: permission of the instructor and Director of Undergraduate Studies. Two courses. *Staff*

For Seniors and Graduates

201. Programming Languages. Information binding, data structures and storage, control structures, recursion, execution environments, input/output; syntax and semantics of languages; study of PL/I, Fortran, Algol, APL, LISP, SNOBOL, and SIMULA; exercises in programming. Prerequisite: Computer Science 152. One course. *Gerhort*

203. Random Signals and Noise. (For description, see Electrical Engineering 203.) One course. *Kerr and Nolte*

205. Signal Detection and Extraction Theory. (For description, see Electrical Engineering 205.) One course. *Nolte*

208. Digital Computer Design. (For description, see Electrical Engineering 208.) One course. *Marinos and Owen*

210. Image Processing. Digital image transducers and processing algorithms; special purpose filters and tracking algorithms as applied to both binary and multi-gray level images; transducer hardware such as flying spot scanners and image dissectors. One course. *Starmer*

211. Control Programs in Operating Systems. Review of control programs such as task scheduling, memory allocations, and I/O control. Identification of the common features of control programs and the hardware-software tradeoffs required for implementation. Prerequisite: Computer Science 231. One course. *Starmer*

212. Advanced Topics in Control Programs. Resource allocation; simulation of various algorithms to identify constraints in a hypothetical system. Prerequisites: Computer Science 211. One course. *Starmer*

215. Artificial Intelligence. Heuristic versus algorithmic methods; programming of games such as chess; theorem proving and its relation to correctness of programs; readings in simulation of cognitive processes, problem-solving, semantic memory, analogy, adaptive learning. Prerequisite: Computer Science 152 or permission of the instructor. One course. *Biermann*

221. Numerical Analysis I. Error analysis and interval arithmetic, interpolation and polynomial approximation methods, numerical differentiations and integration, solution of simultaneous linear equations and matrix inversion, real and complex roots of non-linear equations. Prerequisite: knowledge of an algorithmic programming language and intermediate calculus. (Also listed as Mathematics 221.) One course. *Patrick*

222. Numerical Analysis II. Calculation of eigenvalues and eigenvectors, numerical methods for solving ordinary differential equations, partial differential equations, and integral equations. Prerequisite: Computer Science 221 or equivalent. (Also listed as Mathematics 222.) One course. *Patrick and Utku*

223. Numerical Analysis III. Rational approximation methods, spline approximations, optimization techniques, global methods for solving non-linear algebraic equations. Prerequisite: Computer Science 221 or equivalent. (Also listed as Mathematics 223.) One course. *Patrick*

225. Mathematical Foundations of Computer Science. Introduction to basic concepts and techniques used in mathematical models of computation. Elements of the predicate calculus; applications to automatic theorem proving and verification of programs. Notions of computable sets, functions, algorithmically unsolvable problems. Regular and context-free formal languages and the machines that define them. Prerequisite: four semesters college mathematics. One course. *Loveland*

231. Introduction to Operating Systems. Characteristics and components of operating systems and methods for their implementation. Program linkage and relocation, job scheduling, resource allocation and interrupt handling, input/output control systems, on-line file structures, communication, time

sharing and real time systems. Case studies of existing systems. Prerequisite: Computer Science 152. One course. Ramm

232. Metaprograms. Programs which process programs: compilers, interpreters, and assemblers. Syntax and semantics of programming languages. One course. Gallie

241, 242. Information Organization and Retrieval. Structure, analysis, organization, storage, searching, and retrieval of information. Emphasis on structure of files, dictionary construction and look-up, search and matching procedures, indexing, file maintenance and methods for user interaction with the automated system. Programming experience included. Prerequisite: Computer Science 152. Two courses. Hammond

244. Econometrics II. (For a description, see Economics 244.) One course. Naylor

250. Clustering and Classification. Algorithms and operating characteristics of clustering and classification methods. Data models for sequential data acquisition, clustering in terms of nearest neighbor and/or mixtures of distribution. Techniques for determining equivalence classes of clusters including Bayes' procedures for classification into clusters and super-clusters. Prerequisite: permission of the instructor. One course. Woodbury

265. Advanced Topics in Computer Science. One course. Staff

270. Computer Communication Systems. Elements such as terminals, processors, lines, network structures, control techniques, and software; design tradeoffs; performance prediction with emphasis on simple approximate analytic techniques. Prerequisites: familiarity with computer structures and operating systems and calculus; probability or statistics is desirable. One course. Spragins

DEPARTMENTAL MAJOR

The B.S. Degree

Prerequisites. Computer Science 51; Mathematics 31, 32, 103, 104.

Major Requirements. Computer Science 150, 152, three of the following: 157, 163, 201, 215, 221, 225, 231, 232, 241; and one more course in Mathematics at the 100-level or above. The student must take enough additional courses so that he has completed at least 5 courses (excluding Mathematics 103, 104) at the 100-level or above in one department other than computer science.

Students planning to do graduate work will probably find a reading knowledge of at least one foreign language useful. Students who expect to do their graduate work in computer science should try to include Computer Science 221 and modern algebra in their course of study.

Economics

Professor Kelley, *Chairman*, Assistant Professor Black, *Director of Undergraduate Studies*; Professors Blackburn, Bronfenbrenner, Davies, de Vyver, Goodwin, Kreps, Naylor, Saville, Treml, Vernon, and Yohe; Associate Professors Grabowski, Havrilesky, and Weintraub; Assistant Professors Cook, de Marchi, Graham, McElroy, and Salkin

Economics courses aim to develop in the student the critical and analyti-

cal skills essential for understanding economic problems and institutions, in both their contemporary and in their historical setting. Although no particular vocational or professional goal is emphasized, these courses provide the academic background necessary for positions in industry, for work in many branches of government service, for law school, and for graduate study in business administration, economics, and the social sciences.

For graduation with distinction in economics, at least one junior-senior seminar course is required. See section on Honors in the *Bulletin* for other requirements.

Students planning to do graduate work in economics are advised to take as many of the following courses in mathematics (listed in preferential order) as their schedules permit: Mathematics 31, 32, 51, 103, 104, 131, and 135-136.

1. National Income and Public Policy. Basic economic analysis emphasizing current public policy issues. How the level and rate of growth of aggregate national income and output are determined. What causes unemployment, inflation, and international payments problems. How monetary policy (money supply and interest rates) and fiscal policy (government expenditures and taxes) affect these problems. (Open only to freshmen.) One course. Staff

2. Competition, Monopoly, and Welfare. A continuation of Economics 1. How the composition of the economy's output and the distribution of its income (who is rich and who is poor) are determined in a market economy by supply and demand. How and why markets work or fail to work and the implications of social policies. Role of government in a market economy: contemporary problems of the environment, topics such as environmental economics, monopoly, unionism, international trade. Comparison of a market economy with other systems of economic organization. Economic problems of developing countries. (Open only to freshmen.) One course. Staff

51. National Income and Public Policy. See Economics 1. (For sophomores, juniors, and seniors.) One course. Staff

52. Competition, Monopoly, and Welfare. See Economics 2. (For sophomores, juniors, and seniors. Not open to students who have had Management Sciences 50.) One course. Staff

51D, 52D. The same courses as Economics 51, 52 except taught as lectures with small-group discussion sections. Two courses. Staff

53. Economics of Contemporary Issues. Modern economic problems, such as environmental deterioration and urban decay. The market, as one of the inter-related subsystems of the social system, from institutionalist, Marxist, and other perspectives in the social sciences. One course. Havrilesky

106. The Economics of Poverty. Poverty in the United States: its definition, measurement, history, racial dimensions, and present and proposed policies for its amelioration. Prerequisite: Economics 52. One course. Kreps

107. Economics of the Environment. Theory and practical analysis of the interdependence between environmental quality and consumption, production, public policy, and economic growth. One course. Staff

108. Economics of War. Conflict theory, causes and economic consequences of war, military manpower, military-industrial complex, disarmament and the economy. Prerequisite: Economics 52. One course. Weintraub

114. Economic Geography of Africa. A continental study of the natural

environmental factors of Africa and the basic economic patterns of adjustments and adaptations on regional or national bases. One course. *Tuthill*

115. Fundamentals of Geography. A functional social studies approach to geographic factors and their interrelationships. One course. *Tuthill*

116S. Economic Geography of Anglo-America. Geographic and economic regions of the United States and Canada; their resource base and the major economic activities, their spatial distribution and relative significance. One course. *Tuthill*

120. Economic Geography of Asia. Concepts of agricultural, manufacturing, and distributive location theory, resource evaluation, and regional planning in Asia. One course. *Tuthill*

132. Development of the American Economy. From first settlement to present: quantity of goods and quality of life; employment and leisure; domestic and foreign commerce; poverty and affluence; money and prices; slavery, agriculture, and ghettos; business and labor; and roles and policies of governments. One course. *Saville*

134. Quantitative Analysis in Economics. Partial derivatives, Lagrange multiplier methods, matrix theory, and difference and differential equations. Prerequisite: Mathematics 31. One course. *Staff*

138. Economic Statistics. Survey of principal concepts and methods; application to economics. (Not open to students who have had Mathematics 53 or 183, Management Sciences 110, Psychology 117.) One course. *McElroy and Vernon*

139. Introduction to Econometrics. Data collection, estimation, and hypothesis testing. Use of econometric models for analysis and policy. Prerequisites: Mathematics 31 and 32, or equivalent, and Economics 138 or Management Sciences 110 or equivalent. One course. *McElroy and Vernon*

149. Microeconomic Theory. Cost and supply considerations in price theory; the demand for factors of production. The allocation of resources is examined in the context of competitive and monopolistic market structures. (Not open to students who have had either Economics 161 or Public Policy Studies 110.) *Black, Graham, McElroy, Trembl, and Vernon*

150. History of Economic Thought. Includes approaches to economic problems from Aristotle to Samuelson, emphasizing certain models and doctrines—their origins, relevancy, and evolution. Readings from Mun, Quesnay, Adam Smith, Malthus, Ricardo, Marx, Pareto, and Keynes. One course. *de Marchi and Goodwin*

153. Monetary Economics. The evolution and operations of commercial and central banking and nonbank financial institutions in the United States, the determination of monetary aggregates and interest rates, the financial impacts of Treasury operations, and the linkages from Federal Reserve actions to price level, employment, economic growth, and balance of payments objectives. One course. *Yohe and Havrilesky*

154. Aggregative Economics. Concepts and measurement of national income and expenditures, employment, interest rates, and price levels; the theoretical determination of these aggregates; applications of macroeconomic theory to business cycles and economic growth. One course. *Black, Bronfenbrenner, Havrilesky, and Yohe*

155. Labor Problems. An examination of present-day labor problems fol-

lowed by an intensive study of methods used by employers and workers in meeting those problems. One course. *de Vyver and Kreps*

184S. Canada: Problems and Issues of an Advanced Industrial Society. (See IDC 184S.)*

189. Business and Government. Public policies which most directly affect the operation of competition in the business world. The economic basis for and evaluation of antitrust policy, public utility regulation, and public enterprise. Prerequisite: Economics 149 or consent of instructor. One course. *Grabowski and Vernon*

191, 192. Independent Study. Directed reading and research. Admission will be subject to approval of the individual instructor and the department. Two courses. *Staff*

193, 194. Independent Study. Same as Economics 191, 192 but for seniors. Two courses. *Staff*

195S. Man-Computer Policy Games. Experience in playing, administering, and evaluating policy games such as tax policy, managerial decision-making in competitive markets, and policy toward family planning. One course. *Naylor*

198S. Topics in Market Organization. Market structures, related economic and legal issues, and attempted policy solutions in the United States. Prerequisite: Economics 149. One course. *Grabowski and Vernon*

199. The Changing South. (Also listed as Interdisciplinary Course 199.)

Junior-Senior Seminars in Economics

These seminars are open to all majors in economics, with the consent of the department.

201S.1. Current Issues in Economics. Economic analysis of various public issues and policies. Readings, reports, and discussion on the health care system, crime and punishment, pollution and the environment, the performing arts, welfare, the energy crisis, and other topics. One course. *Davies*

201S.2. Mathematical Economics. Selected mathematical tools from symbolic logic, naive set theory, linear algebra, calculus, analysis and elementary topology applied to the analysis of economic problems. Topics include consumer choice, production, general equilibrium, and growth. Prerequisites: two semesters of college calculus and Economics 149. One course. *Graham*

201S.3. Economics of Higher Education. An analysis of the demand for educated manpower, public and private costs and benefits, the role of private higher education, public policy in higher education, and other topics. One course. *Blackburn*

201S.4. Conflict and Cooperation in Economics. Elements of game theory. Both cooperative and non-cooperative games with particular reference to economic problems such as trading, general equilibrium theory, oligopoly, and monopoly. One course. *Weintraub*

201S.5. Impact Analysis of Government Policies. The impact of government policies on income and employment utilizing methodology of input-output analysis. Applied problems: impact on environment, conflicting national priorities, technological change, marketing projections, foreign trade, shifts in demand, disarmament. One course. *Trembl*

*This course does not count toward the 7 courses required for an economics major.

Other Courses for Upperclassmen

200. Capitalism and Socialism. Selected ideological classics of new and old right and left economics including both "counsels for perfection" (Utopias) and "precepts for action" in political economy. Prerequisite: Economics 149, or 154, or permission of instructor. One course. *Bronfenbrenner*

204S. Advanced Money and Banking. Monetary theory and its statistical and institutional implementation. Particular attention is given to the development of aggregative theories of prices, interest rates, and production; the functioning of monetary policy within various theoretical frameworks; and, appraisal of the recent use and the limitations of Federal Reserve policy. One course. *Havrilesky and Yohe*

211. Introduction to Mathematical Economics. Applications of topics in calculus, differential equations, and linear algebra to the theory of the firm, capital theory, macroeconomics, cycles, growth, and linear economic models. Prerequisites: Economics 149 and 154 and Math 31 and 32, or equivalent. One course. *Graham*

212S. Economic Science and Economic Policy. An historical examination of the impact of economics on public policy; special attention to agriculture, labor relations, the Council of Economic Advisors, and the experience of other countries. One course. *Goodwin*

214. Geonomics: Geography and Contemporary Economics of Africa. Environmental factors in relationship to major economic activities, emphasizing the resource base, ecological adjustments, landscape morphology, and international interdependence. A series of national studies synthesized into a continental format. Prerequisite: permission of the instructor. One course. *Tuthill*

219. Economic Problems of Underdeveloped Areas. Consideration and analysis of the economic and related problems of underdeveloped countries. Some attention will be given to national and international programs designed to accelerate the solution of these problems. One course. *Kelley, Naylor, and Saville*

231S. Economic Development of Europe. Sequence of local, national, and international economic structures under situations of changing trade, industry, agriculture, population, investment, war conditions, public ownership, cartels, colonialism, and prices. One course. *Saville*

233. State and Urban Finance.* Expenditures, taxation, and financial administration in state and local governments, with emphasis on current problems. Special attention will be given to research methods and materials, and to the financial relations between state and local governments. *Black and Davies*

234. Urban Economics. Economic factors which influence the internal development of metropolitan areas. Urban problems involving slums, ghettos, poverty, and transportation are analyzed from an economic point of view. Prerequisite: Economics 149 or consent of instructor. One course. *Black*

237, 238. Statistical Methods. A study of statistical methods appropriate for dealing with problems in business and social science. In addition to developing more thoroughly the subject considered in Business Statistics, the following methods will be considered: simple, multiple, partial, and curvilinear correlation; curve fitting; probability; sampling distributions; and statistical in-

*Offered on demand.

ference. Prerequisite: Economics 138 or consent of the instructor. Two courses. Staff

243. Econometrics I. Economic theory, mathematics, statistical inference, and electronic computers applied to analysis of economic phenomena. Objective is to give empirical content to economic theory. Matrix algebra used to develop topics in inference, linear regression, and systems of simultaneous equations. Use is made of the electronic computer. One course. Naylor

244. Computer Simulation Models of Economic Systems. A course on the design of computer simulation experiments for economic systems. Topics include generation of stochastic variates, computer models of queuing and inventory systems, models of the firm and industry, models of the economy, simulation languages, and experimental design. (Also listed as Computer Science 244.) One course. Naylor

245. Econometrics II. Advanced theory and applications: includes specification error, generalized least squares, lag structures, Bayesian decision-making, simultaneous equation methods, and forecasting. Emphasis on current applied literature. A Track 1, third-level course (see section on Statistics). Prerequisite: Economics 243. One course. McElroy

257. Manpower and Human Resources. Allocation of human resources; returns to investments in education and training; qualitative composition of the labor force. One course. Kreps

262. Trade Unionism and Collective Bargaining. An intensive survey of the trade union as an economic institution is followed by a study of the principles and problems of union-management relationship as found in collective bargaining. One course. de Vyver

265S. International Trade and Finance. A study of fundamental principles of international economic relations. Subjects covered include the economic basis for international specialization and trade, and the economic gains from trade, the balance of international payments, problems of international finance, investments, and monetary problems. Prerequisite: Economics 149. One course. Bronfenbrenner and de Marchi

287. Public Finance. Economic aspects of such problems as the growth of government, the proper role of the state, the centralization and decentralization of government, government bureaucracy, the impact of taxes and spending on the wealthy and the poor as well as other public policies and questions. One course. Davies

293. Soviet Economic History. Economic policy-making in the Soviet Union. Establishment of foundations of a socialist economy: collectivization, industrialization, and search for economic efficiency. One course. Trembl

294S. Soviet Economic System. Economic planning and administration in the Soviet Union and other socialist countries. International comparisons. Theoretical and applied problems of resource allocation, economic development, and optimal microdecision-making in a nonmarket economy. One course. Trembl

DEPARTMENTAL MAJOR

Prerequisites. Mathematics 31, Economics 1 or 51, Economics 2 or 52 (Management Sciences 50 will be accepted in lieu of Economics 2 or 52).

Major Requirements. Any 5 additional courses in the department. Substitution of courses in other departments for similar courses in the Eco-

nomics Department will not be permitted, with one exception—Mathematics 133 or Management Sciences 60, if taken prior to spring semester 1971-1972, may be substituted for Economics 138, thereby counting toward the 5-course requirement.

Education

Professor Hurlburt, *Chairman*; Associate Professor Sublett, *Director of Undergraduate Studies*; Professors Adams, Cartwright, Gehman, Githens, Hopkins, Petty, Shuman, and Weitz; Associate Professors Ballantyne, Carbone, Colver, Davis, Di Bona, Flowers, Johnson, Katzenmeyer, Martin, and Pittillo; Part-time Instructor Swain

Students who expect to teach in the public schools should plan their courses in accordance with the general regulations set forth under Teaching. Students who intend to teach in elementary schools should consult with Professors Adams, Petty, or Sublett; those intending to teach in secondary schools should consult with Professors Cartwright, Githens, or Shuman. Students should confer with these advisers prior to registration each semester.

Students who do not expect to teach but desire an understanding of the school as part of a liberal education are advised to elect such courses as Education 100 and 113 for their introductory work in the department and then to elect further work in accordance with their special interests.

100. Social and Philosophical Foundations of Education. A study of the basic features, assumptions, viewpoints, and issues of education in contemporary America. This course or Education 113 is required of all who intend to practice teach and of all majors in education, and should be taken in the junior year. One course. *Carbone, Di Bona, Johnson, Martin, and Sublett*

105. Elementary Education: Reading. Must be taken concurrently with Education 106. Half-course. *Adams*

106. Elementary Education: Language Arts. Must be taken concurrently with Education 105. Half-course. *Adams*

107. Elementary Education: Arithmetic. The processes, methods, and materials basic to the teaching of arithmetic in the elementary schools. Required in the elementary-education major. Half-course. *Petty*

108. Elementary Education: Science. The principles, methods, and materials basic to the teaching of the sciences in the elementary school. Required in the elementary-education major. Half-course. *Githens*

113. History of American Education. A study of American education from colonial times to the present. The development of schools, their organizations, administration, curriculum, and methods as seen in relation to the social forces that have produced our particular type of civilization. One course. *Johnson*

118. Educational Psychology. Psychology of learning, individual and social development, and psychology of adjustment as related to problems of instruction and the process of education. Prerequisite: Psychology 92, 93, 94, or 95. 1 course. *Davis*

151. Public School Music Education. Required in the elementary-education major. (See Music Education 151 for description.) Half-course.

152. Public School Music Literature. Required in the elementary-education major. (See Music Education 152 for description.) Half-course.

153. Vocal Music in the Public School. (See Music Education 153 for description.) One course.

154. Instrumental Music in the Public School. (See Music Education 154 for description.) One course.

161. Integrated Art in the Public School. Work in the materials and methods in basic two-dimensional art media. Half-course. Stars

162. Plastic Art in the Public School. Work in basic three-dimensional art; emphasis on ceramics. Half-course. Stars

173, 174. Tutorial Practicum in Reading. Assessment of reading abilities and disabilities; instruction of individuals and small groups of elementary and/or secondary students enrolled in the Duke Reading Center. Prerequisite: Education 105-106 or Education 236, and permission of the instructor. One course. Adoms

191, 192. Independent Study. Directed reading and research for juniors. Prerequisite: approval of instructor and the Director of Undergraduate Studies. Two courses. Staff

193, 194. Independent Study. Directed reading and research for seniors. Prerequisite: approval of instructor and the Director of Undergraduate Studies. Two courses. Staff

195S. Elementary Education: Principles. The nature, subject matter, and organization of elementary education for instruction in the primary and intermediate grades. Must be accompanied by Education 196. Half-course. Petty and Sublett

196. Elementary Education: Internship. Full-time observation and teaching for half a semester. Prerequisites: Education 195S, C average overall and in the elementary education major; preparation for teaching in the elementary school; or consent of the instructor. This course combined with Education 195S will fulfill the seminar and independent study requirement. One and one-half courses. Petty and Sublett

201. Teaching and Supervision of Arithmetic. Special attention is given to the number system, the fundamental operations (with whole numbers, fractions, and decimals), percentage, and measurements. Considered also are the meaning theory, methods of teaching, problem-solving, evaluation, practice and drill, and selection and gradation of arithmetical contents. Designed for teachers and supervisors in elementary schools. One course. Petty

202. Comparative and International Education: Industrialized Nations. Structure and functioning of educational institutions in selected developed societies. Relevant social science theory and methods emphasized. One course. Di Bona

206. Studies in the History of Educational Philosophy. The educational views of leading thinkers in the history of Western philosophy, including Plato, Augustine, Locke, Rousseau, Kant, Whitehead, and Dewey. One course. Corbone

207. Social History of Twentieth Century American Education. Twentieth century American education in the context of social and intellectual history. One course. Johnson

209S. John Dewey. Dewey's major writings with emphasis on his philosophy of education. One course. Corbone

215S. Secondary Education: Principles. Principles, curriculum and methods in secondary education. Prerequisite: C average overall and in teaching

field or fields. Must be accompanied by Education 216. Half-course. Cartwright, Githens, Johnson, and Shuman

216. Secondary Education: Internship. Supervised internship in junior or senior high school. Full-time observation and teaching for half a semester. Prerequisites: Education 215S, C average overall and in the major or teaching field; preparation for a teaching field; or the consent of the instructor. This course combined with Education 215S will fulfill the seminar and independent study requirement. One and one-half courses. Cartwright, Githens, Johnson, and Shuman

217. The Psychological Principles of Education. An advanced study of teaching, learning, and the learner. Selected problems guiding the reading of students will be discussed in class. One course. Davis and Gehman

218. Comparative and International Education: Developing Societies. Structures and functioning of educational institutions and processes in developing nations. One course. Di Bona

219. Comparative and International Education: South Asia. Traditional and modern educational developments in India and Pakistan. One course. Di Bona

221. Programs in Early Childhood Education. Examination of the objectives and philosophy underlying programs in early childhood education, including an overview of existing practices, research findings, and experimental projects dealing with social, emotional, physical, and cognitive development. One course. Flowers

222. New Developments in Elementary School Curriculum. The open classroom, team teaching, non-graded programs, and individualized instruction. Assessment of recent emphasis on early childhood education and the middle school. One course. Sublett

225. The Teaching of History and the Social Studies. Evaluation of the objectives, content, materials, and methods in the teaching of history and the social studies. One course. Cartwright

226. Teaching Developmental and Remedial Reading in the Elementary School. A study of the nature of the reading process and of principles, methods, and materials for the development of effective reading attitudes and skills as applied both to developmental and remedial programs. Practice is provided with elementary school children suffering reading retardation, in testing, diagnosis, and daily remedial teaching. One course. Adams

236. Teaching Developmental and Remedial Reading in the Secondary School. A study of the nature of the reading process and of principles, methods, and materials for the development of effective reading attitudes and skills as applied both to developmental and remedial programs. For secondary school teachers of all subjects who wish to improve the reading and study habits of their students. One course. Adams

237. The Teaching of Literature in Secondary Schools. Literature generally taught in secondary schools. Adult and transitional literature are considered. Methods of organizing the program and of teaching literature. One course. Shuman

239. The Teaching of Grammar, Composition, Mechanics, and Usage in Secondary School. Recent developments in the teaching of grammar, composition, mechanics, and usage. Students will write and grade compositions. Term project. One course. Shuman

241. Foundations of Counseling and Personnel Services. Scope, principles, historical background, services, trends and issues of counseling, and pupil personnel services. One course. *Ballantyne and Colver*

246. The Teaching of Mathematics. The course deals with such topics as aims, curriculum, course and lesson planning, and classroom procedure for teaching secondary school mathematics. One course. *Troy*

253. Law and Education. The elements and problems of educational organization which have come within the purview of constitutional and legislative provisions and appellate court decisions. One course. *Martin*

255. Assessment of Abilities. The selection, use, and interpretation of various instruments for predicting and evaluating the outcome of educational experiences including surveys of standardized tests of aptitude and achievement. One course. *Colver*

256. Classroom Assessment of Student Achievement. The techniques used by classroom teachers to evaluate student progress. Special emphasis will be directed to tests written by teachers. One course. *Colver*

258. Assessment of Personality, Interests, and Attitudes. The rationale, construction, use, and interpretation of standardized instruments designed for the assessment of students' interests, attitudes, and personality. Emphasis on counseling applications. Prerequisites: Education 243 and 255 or approval of instructor. One course. *Weitz and Colver*

266. Basic Science for Teachers. Presentation of basic concepts in natural and physical science through selected readings, the use of simple experiments and demonstrations, construction and use of equipment, and field studies. One course. *Githens*

276. The Teaching of High School Science. Discussion, lectures, and collateral reading related to such topics as aims, tests, curriculum, classroom and laboratory procedure, field trips, and course and lesson planning for secondary-school science. One course. *Githens*

DEPARTMENTAL MAJOR

Undergraduate majors in education at Duke University are offered in elementary school education and science education.

The Department offers work leading to graduation with distinction. See the section on Honors in this *Bulletin*.

Duke University is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary school teachers. The University's programs are also approved by the North Carolina Department of Public Education.

The program for students who intend to teach is designed to prepare for positions either in elementary or secondary schools. Prerequisites for all prospective teachers are Psychology 92, 93, 94 or 95, preferably during the sophomore year, and Education 100 or 113, preferably during the junior year. Only students with a C average overall and in their major or teaching fields will be admitted to student teaching. Special methods courses should be taken prior to undergraduate student teaching, which is part of a planned professional semester in the senior year.

Elementary Education. A major in this program is designed for those students who desire to meet the certification requirements for teaching in the elementary school.

Required General Education Courses

English	1 course or by examination
Foreign language	Second year (or equivalent) or 2 courses in fine or practical arts
Biological Science	2 courses
Mathematics	1 course
History 91-92	2 courses
Political Science 61	1 course
Economics 115 or 120	1 course
Literature	1 course
Psychology 92, 93, 94, or 95	1 course

Required Specialized Subject Matter Courses

Physical Education (for Early Childhood or Intermediate Grades)	½ course
Health Education 134	½ course
Music Education 151-152	1 course
Education 161-162	1 course
Education 105	½ course
Education 106	½ course
Education 107	½ course
Education 108	½ course

Required Professional Courses

Education 100 or 113	1 course
Education 118	1 course
Education 195S	½ course
Education 196	1½ courses

A major in elementary education must include the concentration of at least 6 courses in subjects commonly taught in elementary school, chosen from one of the divisions—humanities, natural science, or social science. The concentration may include courses from the general education requirement.

Secondary School Teaching. Whatever their majors, students preparing to teach must consult the appropriate professional adviser in the Department of Education prior to each registration period to assure that they will be eligible to enter the required student teaching program. Students preparing to teach in a secondary school meet certification requirements by qualifying in one teaching field. Prospective secondary school teachers must major in a subject other than education. Qualifications for certification to teach a single science may be sought under either the A.B. or the B.S. degree. Students desiring to major in science education should read carefully the description of that program given below.

Science Education. Students intending to teach sciences in secondary schools may major in science education. The program meets certification requirements and provides a broad background in several sciences. Early consultation with an adviser in the Department of Education and a selected department in science or mathematics is required. Five courses in education (100 or 113, 118, 215S, 216, 246 or 276) are required. The Science Education program provides the required 2 courses in mathematics and laboratory work in at least three sciences, with concentration in one of these. University curriculum requirements account for a maximum of 14 courses. The remaining 18 are selected to provide breadth in at least three sciences and must include a minimum of 4 advanced courses. The general and professional courses required for certification may be met in part both by the University curriculum distribution and within the 18 courses devoted to concentration.

A major in science education leads to an A.B. degree within the normal 32

course limit. Students wishing to have the B.S. degree may expect to take more than 32 courses. The normal number of courses may be reduced by advanced placement or proficiency tests in English and foreign language.

Materials and Methods Courses. Certain courses concerned with materials and methods in teaching the various subjects in the public school curriculum are listed in the proper subject matter department. These courses are intended to give credit for teaching certificates and are recommended by the Department of Education for such credit.

STUDENT TEACHING

During the eight weeks of student teaching, students should plan to live in a community which is some distance from Durham. This will entail some additional living expense to be borne by the student teacher. Room rent refund is not made.

English

Professor Budd, *Chairman*; Professor Williams, *Director of Undergraduate Studies*; Associate Professor Gerber, *Supervisor of Freshman Instruction*; Professors Anderson, Bevington, Cady, Duffey, Ferguson, Lievsay, Nygard, Price, Randall, Reiss, Ryals, Smith, and Turner; Associate Professors Clubbe, Harwell, Jackson, Jones, Mellown, Michalak, Monsman, Reardon, Strandberg, and Wetherby; Assistant Professors Adams, Applewhite, Butters, Clum, and DeNeef; Part-Time Lecturer Wittig

WRITING AND LANGUAGE

1. Freshman Composition. Weekly expository themes based on British and American prose fiction and nonfiction; one general lecture, one section meeting, and one individual conference each week. One course. *Staff*

65S, 66S. Imaginative Writing. Informal essay, short story, poetry, drama, and film. Prerequisite: consent of the instructor. Two courses. *Monsman*

101S. Advanced Expository Writing. Designed for students interested in expository writing, this is a course in advanced composition. It includes also business letters and reports. Primarily for juniors and seniors; open also to sophomores approved by the instructor. One course. *Harwell*

102S. The Composition of Prose Narrative. The writing of a novel or novella. Primarily for juniors and seniors; consent of instructor required early in the preceding semester. One course. *Price*

103S, 104S. Creative Writing. Class discussion of students' manuscripts and individual conferences with the instructor. Open to sophomores, juniors, and seniors. Students desiring admission to either course should present a piece of writing to the instructor as early as possible during the preceding semester. Two courses. *Applewhite, Bevington, Monsman, and Price*

106S. The Writing of Poetry. A study of meter, image, tone, and dramatic organization in traditional and modern poems as a basis for original composition. Prerequisite: consent of the instructor. One course. *Applewhite*

107. Introduction to Linguistics. Origin and nature of language; methods of descriptive linguistics with reference to historical and comparative linguistics. Prerequisite: sophomore standing. One course. *Staff*

108. Development of the English Language. An elementary historical

study of the English language: patterns of change and growth, with some attention to methods of philological inquiry and the relations of philology to literary studies. One course. Butters

109. Modern English Grammar. A descriptive study of written and spoken American English of the present time, with attention to standards of usage and pronunciation and the relations of grammar to composition. One course. Butters

ENGLISH AND AMERICAN LITERATURE

Introduction to Literature. One course each; English 26 may be taken twice.

20. (Not a course. This number represents 1 course credit for advanced placement.)

21S. Studies in the Novel.

22S. Studies in Drama.

23S. Studies in Drama and Poetry.

24S. Studies in Poetry.

25S. Studies in Epic.

26. Studies in Special Topics. (Many of the sections of this course are taught as seminars; the Schedule of Courses should be consulted.)

55, 56. Representative British Writers. Usually these works are studied in the first semester: Chaucer's Prologue to *The Canterbury Tales* and at least two tales, Shakespeare's *I Henry IV*, *Hamlet* or *King Lear*, and one other play, John Donne's poetry (selections), Milton's *Paradise Lost* (selections) and some of the shorter poems; in the second semester: novels by Fielding (*Joseph Andrews*) and Dickens (*Great Expectations*), and selections from the poetry of Pope, Wordsworth, Keats, and Yeats. Two courses. Staff

57, 58. Representative American Writers. Selections and complete works. The first semester includes Poe, Emerson or Thoreau, Hawthorne, Melville, Whitman, Dickinson, and Twain; the second semester includes James, Frost or Robinson, Crane or Dreiser, O'Neill, Faulkner, Hemingway, and others. Open to juniors and seniors with the permission of the Director of Undergraduate Studies. Prospective majors should take courses numbered 173 through 176 instead of this course. Two courses. Staff

112. English Literature of the Middle Ages. A study of the principal forms and examples of English prose, poetry, and drama of the Anglo-Saxon and Middle English periods (excluding Chaucer), read in translation. One course. Reiss

115. Chaucer. *The Canterbury Tales* and the minor poems, with attention to their literary and social background. One course. Adams, Nygard, and Reiss

121. English Literature of the Sixteenth Century. Emphasis in poetry on Wyatt, Sidney, Spenser, Raleigh, Shakespeare; in prose on Sidney and Florio's *Montaigne*; in drama on Marlowe. One course. DeNeef

123, 124. Shakespeare. In the first semester twelve plays before 1600; in the second semester about ten plays after 1600. Two courses. DeNeef and Williams

125. English Literature of the Early Seventeenth Century. Emphasis in poetry on Jonson and the cavaliers, Donne and the metaphysicals; in drama on Jonson, Tourneur, Webster, Ford; in prose on character writers, and Bacon, Burton, Donne, Browne. One course. DeNeef

126. English Literature of the Late Seventeenth Century. Emphasis in poetry on later metaphysicals, and Cowley, Denham, Waller, Dryden; in prose on Taylor, Dryden, Hobbes, Locke; in drama on Dryden, Congreve, Etherege, Wycherley. One course. *DeNeef*

127. Milton. Milton's poetry and prose, their relation to the period and to other great works of literature. One course. *Lievsay and Price*

129. English Drama from the Middle Ages through the Eighteenth Century. Emphasis on Tudor and Stuart drama, exclusive of Shakespeare. One course. *Clum and Reardon*

131, 132. Eighteenth Century Literature. The writers emphasized in the first semester are Pope, Swift, Defoe, Addison, Steele, and Fielding; in the second semester, Johnson, Gray, Boswell, Goldsmith, Sheridan, Blake, and later novelists. Two courses. *Ferguson and Jackson*

138. The English Novel From the Beginnings to 1800. Some of the writers studied are Nashe, Deloney, Lyly, Sidney, Bunyan, Behn, Defoe, Richardson, Fielding, Smollett, and Sterne. One course. *Jackson*

141, 142. English Literature of the Early Nineteenth Century. The course begins with the forerunners of Romanticism. The chief emphasis in the first semester is on the work of the older Romantics: Wordsworth, Coleridge, Lamb, and Hazlitt. In the second semester the chief emphasis is on the work of the younger Romantics: Byron, Shelley, Keats, and DeQuincey. Two courses. *Applewhite, Clubbe, and Sanders*

145, 146. English Literature, 1832-1900. A study of the major writers of poetry and prose from Macaulay to Hardy. In the first semester, Macaulay, Tennyson, Carlyle, the Brownings, Newman, Mill, Clough, and FitzGerald; in the second semester, Arnold, the Rossettis, Ruskin, Patmore, Meredith, Huxley, Morris, Swinburne, Pater, and Hardy. Collateral reading from novels of the period. Two courses. *Harwell, Monsman, and Sanders*

148. The English Novel in the Nineteenth Century. Some of the writers studied are Scott, Austen, Dickens, Thackeray, Trollope, the Brontes, George Eliot, Meredith, Butler, and Hardy. One course. *Harwell and Monsman*

151, 152. English Literature of the Twentieth Century. Emphasis on principal writers of fiction, drama, and poetry. First semester: usually Conrad, Shaw, Yeats, Wells, Synge, Forster, Woolf, and Joyce. Second semester: usually Lawrence, Cary, Huxley, Auden, Greene, Beckett, and Dylan Thomas. Two courses. *Bevington, Mellown, and Smith*

153, 154. Twentieth Century Poetry. A study of twentieth century poetry and criticism of poetry in England and America. Problems in critical analysis and interpretation. First semester: the emphasis is on sources in nineteenth century symbolism and on the poetry of Hopkins, Yeats, Eliot, Pound, and Stevens. Second semester: the emphasis is on the poets and the poetic theories of the last thirty years. Two courses. *Bevington, Mellown, and Smith*

158. The English Novel in the Twentieth Century. Some of the writers studied are Conrad, Lawrence, Forster, Joyce, Woolf, Huxley, Cary, Amis, and Golding. One course. *Mellown and Smith*

159. English and Irish Drama of the Nineteenth and Twentieth Centuries. Emphasis on the modern period. One course. *Clum and Reardon*

173. American Literature to 1800. Colonial authors, Bradford, Taylor, Cotton Mather, Edwards, Byrd, and Franklin, and authors of the early Republic such as Tyler, Freneau, and C. B. Brown. One course. *Staff*

174. American Literature from 1800 to 1860. Prose and poetry of American Romanticism: Emerson, Thoreau, Hawthorne, Poe, Melville, and Whitman. (Not open to students who have taken 57.) One course. *Staff*

175. American Literature from 1860 to 1915. Dickinson, Twain, James, the social and philosophical essayists, Crane, Dreiser, Robinson, and Frost. (Not open to students who have taken 58.) One course. *Staff*

176. American Literature since 1915. Poetry, fiction, drama, and critical prose from Stein, Anderson, O'Neill, Hemingway, and Faulkner to such contemporary authors as Malamud and R. Lowell. (Not open to students who have taken the old 138.) One course. *Staff*

177, 178. American Fiction. A survey of the novel and the short story. The first semester covers the nineteenth century from Washington Irving to Stephen Crane; the second semester covers the twentieth century through ten representative books. Two courses. *Anderson, Budd, and Clum*

179. American Drama. Representative plays from Colonial times to the present: a historical survey. One course. *Reardon*

Conference Courses. Seminars primarily for majors, with priority given to seniors. Emphasis on literary theory and critical writing, with intensive study of one or more authors. One course each; each course may be taken twice.

180S. Conference on Criticism.

181S. Conference on Drama.

182S. Conference on Poetry.

183S. Conference on Fiction.

184S. Conference on Prose Non-Fiction or a Special Topic.

186. Modern Critical Methods. Major schools of modern criticism: formalistic, moralistic, psychological, biographical, historical, textual, mythic, aesthetic. Emphasis on the theoretical and practical writings of representative critics. One course. *DeNeef*

191, 192, 193, 194. Independent Study. Directed reading and research. Students should consult the Director of Undergraduate Studies as early as possible in the semester preceding enrollment. One course each. *Staff*

195T. Tutorial. Directed reading and research. Prerequisite: approval of Director of Undergraduate Studies the preceding semester. One course. *Staff*

197T, 198T. Distinction in English. Tutorials in the reading and criticism of selected British and American writers. Three essays the first term; three essays or an extended paper the second term. Upon recommendation of the tutors and completion of other requirements, the student may graduate with distinction in English. Admission by invitation of the department; students expecting to graduate early may take these courses in reverse sequence, beginning in the spring term preceding their graduation. Two courses. *Jackson and Jones*

FOREIGN LITERATURES (IN TRANSLATION)

161. The European Background of English Literature. Influence of ancient and medieval literature. One course. *Harwell*

163, 164. Readings in European Literature. European literature in translation related to similar works in English. The first semester includes works by Rabelais, Cervantes, Voltaire, Goethe, and others. The second semester includes works by Balzac, Dostoevsky, Ibsen, Kafka, Sartre, Camus, and others. Two courses. *Clubbe*

165. Readings in Scandinavian Literature. A study of selections in translation from Ibsen, Strindberg, Lagerkvist, and others; their place in the literary tradition of Scandinavia and their relationships with English and American literature. One course. *Anderson*

169. Modern European Drama. Ibsen to the present; the free theatre movement and the drama of ideas. One course. *Reardon*

SPEECH AND THEATER

50. Essentials of Public Speaking. A basic course in public speaking, designed to give the student the poise and confidence necessary to think and speak freely before an audience. Particular attention is paid to the gathering and organization of speech materials and to oral presentation. Not open ordinarily to juniors and seniors. One course. *Michalak*

100. English for Foreign Students. Designed to assist the student to whom English is a second language to perfect his speaking and understanding of the language. Drills in writing, speaking, listening, and the American idiom. Open to all students and their wives, and to any persons and spouses with an official connection with the University. Those who do not pay full-time student fees may register for a fee of \$5.00. No credit. *Staff*

110. Essentials of Public Speaking. A basic course in public speaking for juniors and seniors dealing with the same matters as 50. (Not open for credit to students who have taken 50.) One course. *Michalak*

119. History of the Theater. The origin and development of drama, acting, and stagecraft from ancient Greece to the modern European and American theater. Production problems of representative plays of the various periods will be discussed. Primarily for juniors and seniors; open also to sophomores approved by the instructor. One course. *Michalak*

120. Stagecraft. An introductory course on the technical aspects of play production: scenery, lighting, properties, make-up, and costuming. Laboratory work will be coordinated with the various productions of the Duke Players. Primarily for juniors and seniors; open also to sophomores approved by the instructor. One course. *Michalak*

130. Play Production. an introduction to the methods of producing a play— theater organization, play selection, casting, and rehearsal. Lectures and laboratory. Primarily for juniors and seniors; open also to sophomores approved by the instructor. One course. *Michalak*

139. The Speaking Voice. A study of the mechanisms of speech. Emphasis is placed on providing the skills necessary for the improvement of voice, pronunciation, and diction. Methods of correcting minor functional speech disorders will also be studied. One course. *Wetherby*

140S. Argumentation. The principles of argumentation and debating. The techniques of analysis, investigation, evidence, reasoning, brief making, and refutation. Participation in class discussions and debates. One course. *Wetherby*

150. Persuasive Speaking. The psychological and sociological techniques used in gaining acceptance of ideas through speech. Study is made of the factors influencing human behavior; audience analysis and motivation; choice, arrangement, and adaptation of material. Extensive practice in persuasive speaking. One course. *Wetherby*

160, 170. Broadcasting. A study of the background of radio and television

broadcasting. The first semester covers the development of broadcasting as an industry and as a literary form. The second semester studies the legal and social aspects, and various program forms. Two courses. Wetherby

GRADUATE COURSES OPEN TO UNDERGRADUATES

207, 208. History of the English Language. Old to Modern English; developments in phonology, morphology, syntax, and vocabulary. First semester, Old English; second semester, 1100 to the present. Two courses. Nygard and Reiss

209. Present-Day English. A description of present-day American English from the point of view of modern linguistic theory; comparison of traditional and structural grammars; semantic change; the relation of the written to the spoken language; usage. One course. Nygard and Reiss

210. Old English Literary Tradition. Poetry: heroic traditional (aside from *Beowulf*), the elegiac tradition, and the Caedmonian and Cynewulfian schools. Prose: Alfred, AElfric, and Wulfstan. Prerequisite: English 207. One course. Nygard and Reiss

212. Middle English Literary Tradition. From 1100 to 1500 (excluding Chaucer); medieval genres; reading of selected texts. A reading knowledge of Old or Middle English is recommended. One course. Nygard and Reiss

215. Chaucer. *The Canterbury Tales*. One course. Nygard and Reiss

216. Chaucer. *Troilus and Criseyde* and the minor poems. One course. Nygard and Reiss

221. English Prose of the Sixteenth Century. Readings in the major forms and authors. One course. Lievsay

222. English Nondramatic Poetry of the Sixteenth Century. Extensive select readings from representative types and authors, excluding Spenser. One course. DeNeef and Lievsay

223. Spenser. The reading of Spenser's works, with chief attention to *The Faerie Queene*. One course. DeNeef and Lievsay

224. Shakespeare. The plays. One course. Williams

225, 226. Tudor and Stuart Drama, 1500-1642. First semester: Peele, Lyly, Greene, Kyd, Dekker, Heywood, Chapman, and Marston, with emphasis on Marlowe. Second semester: Jonson, Webster, Beaumont, Fletcher, Massinger, Middleton, Ford, and Shirley. Two courses. Randall

229, 230. English Literature in the Seventeenth Century. Major works in prose, poetry, and drama from 1600 to the death of Dryden. Two courses. Lievsay, Randall, and Williams

232. Milton. Milton's poetry and prose, with emphasis on the major poems. One course. Lievsay

234. English Drama, 1642-1800. The heroic play and the comedy of manners of the Restoration; the important plays, serious and comic, of the eighteenth century. One course. Jackson

235, 236. The Eighteenth Century. Swift, Pope, Defoe, Addison, Steele, and others are studied in the first semester; in the second, Gray, Johnson, Boswell, Collins, Goldsmith, the novelists, and other writers. Two courses. Ferguson and Jackson

241, 242. English Literature of the Early Nineteenth Century. The Ro-

mantic poets and prose writers: first semester, 1790-1810, with emphasis on Wordsworth, Coleridge, and Scott; second semester, 1810-1830, with emphasis on Byron, Shelley, and Keats. Two courses. *Clubbe and Sanders*

245, 246. English Literature of the Later Nineteenth Century. The first semester is devoted chiefly to Carlyle, Dickens, Thackeray, Tennyson, and Browning; the second semester to Arnold, Ruskin, Pater, George Eliot, Meredith, the Pre-Raphaelites, and Swinburne. Two courses. *Clubbe, Monsman, and Ryals*

251, 252. English Literature of the Twentieth Century. Representative work of leading writers from 1900 to 1950, in fiction, drama, and poetry. The first semester will include Shaw, Conrad, Yeats, Wells, Bennett, Galsworthy, Ford, Synge, Forster, and Lawrence; the second semester, Joyce, Woolf, Edith Sitwell, Eliot, Huxley, Graves, Bowen, Auden, and Dylan Thomas. Critical analysis of selected texts, with discussion of techniques and ideas. Two courses. *Mellown and Smith*

263, 264. American Literature, 1800-1865. The writers emphasized in the first semester are Emerson, Thoreau, and Hawthorne; in the second semester, Poe and Melville. Two courses. *Anderson, Budd, Jones, and Turner*

267, 268. American Literature, 1865-1920. Selected works of representative authors. The first semester will include Whitman, Lanier, Mark Twain, James, Howells, Emily Dickinson, and the Local Colorists; the second semester, Crane, Norris, Moody, London, Dreiser, Edith Wharton, O'Neill, Robinson, and Frost. Two courses. *Budd and Cady*

270, 271. Southern Literature. Emphasis in the first semester is on Byrd, Kennedy, Simms, Poe, Timrod, and the humorists; in the second, on Lanier, Harris, Cable, Mark Twain, Ellen Glasgow, and Faulkner. Two courses. *Turner*

275, 276. American Literature Since 1920. First semester, selected fiction from Gertrude Stein to the present. Second semester, poetry from the Imagist movement to the present. Two courses. *Duffey and Strandberg*

280. Introduction to Folklore. A survey of the materials of popular tradition, the folksong, the folktale, the proverb, the riddle, and other forms; the methods of folklore investigation; and the relation of these popular genres to literary tradition. One course. *Nygard*

285. Literary Criticism. Readings from the major critics, Plato to the eighteenth century with emphasis on formative ideas and historical continuity. One course. *Lievsay*

287. Recent Critical Thought. Questions of the nature and value of literature as reflected in recent criticism, theoretical and practical. One course. *Duffey*

289. Literary Biography. Selected works from Plutarch to Strachey with discussion of the historical development of biography, the various methods it has used, and the various theories which have been held about it. One course. *Sanders*

DEPARTMENTAL MAJOR

Basic Requirement. English 55-56.

Major Requirements. Six courses above the sophomore level including 1 course in one of the major authors: Chaucer, Shakespeare, Milton; 2 courses in one of the two-semester historical surveys of British or American Literature; 2 courses in areas not represented by the historical survey chosen (1 in each

area)—(a) British Literature before 1800, (b), British Literature after 1800, and (c) American Literature; and 1 additional course given in the English Department (in writing, speech, drama, literature, or language).

The English Department recommends that its majors complete at least two years of college-level study, or the equivalent, of a foreign language. Those majors contemplating graduate work in English should note that many M.A. programs require examination in one foreign language and that Ph.D. programs commonly require examination in two.

The department offers work leading to graduation with distinction. For further information consult the Director of Undergraduate Studies; see also the section on Eligibility for Academic Honors in this *Bulletin*.

Forestry

Undergraduate students who are preparing for professional careers in forest resource sciences or administration should enroll in the Academic-Forestry Program as given in the section on professional combination courses.

Other undergraduate students in arts and sciences with adequate preparation and permission of the instructor may elect the following courses:

152. Conserving Natural Resources. Fundamentals of natural resource development, use, management, and protection based on principles of the natural and social sciences. One course. *Staff*

203. General Meteorology. Prerequisites: introductory courses in calculus and physics. One course. *Vukovich*

204. Microclimatology. Prerequisites: introductory courses in calculus and physics. One course. *Knoerr*

205. Tree Growth and Development. Prerequisites: introductory courses in botany and chemistry. One course. *Barnes*

206. Anatomy of Woody Plants. Prerequisite: Forestry 241 or plant anatomy. One course. *Philpott*

215. Air Pollution Meteorology. Prerequisite: Forestry 203 or equivalent. (Course sponsored by Triangle Universities Consortium on Air Pollution and taught by faculty from North Carolina State University). One course. *Staff*

222. Biology of Forest Insects and Diseases. Prerequisites: introductory courses in biology and physiology. One course. *Anderson and Stambaugh*

233. General Entomology. Prerequisite: Forestry 222 or equivalent. One course. *Anderson*

241. Dendrology (Taxonomy of Forest Trees). Prerequisite: introductory course in botany. One course. *White*

243. Natural Resource Ecology. Prerequisite: introductory course in botany. One course. *Wuenscher*

250. Biometry. Prerequisite: introductory course in calculus. One course. *Yandle*

269. Resource Economics and Policy. Prerequisite: introductory course in economics. One course. *Convery*

273. Economics and Environment Quality. Prerequisite: introductory course in economics. One course. *Convery*

Course descriptions and other courses that might serve the interests of individual students are given in the *Bulletin of the School of Forestry*.

French

For courses offered in French, see Romance Languages.

Genetics—The University Program

Professor Gross, Director (Biochemistry); Professors Amos (Microbiology and Immunology), Gillham (Zoology), and Guild (Biochemistry); Associate Professors Antonovics (Botany), Boynton (Botany), Kelley (Medicine and Biochemistry), C. Ward (Zoology), and Webster (Biochemistry); Assistant Professors Hall (Biochemistry), Harriman (Biochemistry), Kredich (Medicine and Biochemistry), and F. Ward (Microbiology and Immunology).

For a description of the following courses consult the listings under the specified departments.

The University Program in Genetics provides a coherent course of study in all facets of biology related to genetics. Students interested in preparation for advanced work in genetics or wishing to take an interdisciplinary major in this area should consult Dr. Ward (032 Biological Sciences Building). Information concerning interdisciplinary programs involving biology should be discussed with the appropriate directors of undergraduate studies.

117. Heredity and Society. (Listed as Zoology 117.) One course. Ward

180. Principals of Genetics. (Listed as Botany 180, Botany 280, Zoology 180, and Zoology 280.) One course. Antonovics, Boynton, and Gillham

186. Evolution. (Listed as Botany 186, Zoology 186, and Zoology 286.) One course. Antonovics, Lundberg (Zoology), and H. Wilbur (Zoology)

204. Introductory Genetics. (Listed as Biochemistry 204.) Half-course. Gross and Staff

216. Molecular Genetics. (Listed as Biochemistry 216.) One course. Guild and Staff

280. Principles of Genetics. (Listed as Botany 280 and Zoology 280.) One course. Antonovics, Boynton, and Gillham

282. Experimental Genetics. (Listed as Biochemistry 282.) Half-course. Hall, Harriman, and Staff

284. Current Topics in Genetic Mechanisms. (Listed as Biochemistry 284.) Half-course. Hall and Staff

285. Population Genetics and Evolution. (Listed as Botany 285.) One course. Antonovics

286. Evolution. (Listed as Botany 186, Zoology 186, and Zoology 286.) One course. Antonovics, Lundberg (Zoology), and H. Wilbur (Zoology)

288. The Ceil in Development and Heredity. (Listed as Zoology 288.) Half-course. Counce, Gillham, and Staff

Independent Study and Special Problems are offered in the Department of Botany under 191, 192, 193, 194, 225, and 226, and in the Department of Zoology under numbers 191 and 192. A student should obtain the permission of both the instructor with whom he wishes to work and the appropriate director of undergraduate studies before registering for these courses.

Geography

For courses offered in Geography, see *Economics*.

Geology

Professor Heron, *Chairman*; Associate Professor Furbish, *Director of Undergraduate Studies*; Professor Pilkey; Associate Professors Perkins and Lynts; Part-Time Lecturer Shuart

1. Geological Environments and Man. Physical and chemical environments acting on the earth with special emphasis on their interaction with man. Three lectures and proficiency sessions to be arranged by students. One course. Heron, Perkins, and Pilkey

1P. Preceptorial. Field trips. Four hours once a month on Saturday. Elective for students enrolled in Geology 1. Staff

2. History of the Earth. Including the physical development and the geological evolution of life. Three one-hour lectures and one two-hour laboratory. Prerequisite: Geology 1 or consent of instructor. One course. Heron and Lynts

2P. Preceptorial. A weekend field trip to the classic Paleozoic section in the Appalachians of Virginia and West Virginia in early April, and a one day field trip through the Deep River Triassic Basin in late April. Elective for students enrolled in Geology 2. Staff

3. Environmental Geology. Earth processes including geologic hazards; earth materials, including mineral resources, as related to man. Not open to those who have completed Geology 1. One course. Heron

53. Introductory Oceanography. Basic principles of physical, chemical, biological, and geological oceanography. Prerequisite: one year laboratory science or concurrent enrollment in a laboratory science. (Also listed as Botany 53.) One course. Pilkey and Searles

54. Environmental Oceanography. The interaction of man and the marine environment. Lecture and field trips. Given biennially. One course. Pilkey

101. Crystallographic Mineralogy. Definition of the crystalline state, lattice and group concepts, indices, crystal systems, classification, and crystal morphology. Lectures and laboratory. One course. Furbish

102. Fundamentals of Mineralogy. Crystal chemistry, crystal physics, mineral identification, and genesis. Lectures or recitations, laboratory, and field trips. Prerequisite: Chemistry 12 (may be taken concurrently) and Geology 101. One course. Furbish

106. Igneous and Metamorphic Rocks. Silicate mineralogy, theory of origin and classification of igneous and metamorphic rocks and rock identification. Lectures and laboratory. Prerequisite: Geology 102. One course. Furbish

108. Sedimentary Rocks. Authigenic and detrital minerals, theory of origin and classification of sedimentary rocks and rock identification. Lecture, laboratory, and field trips. Prerequisite: Geology 1. One course. Heron

164. Introduction to Geologic Field Methods. Principles and techniques used in geologic mapping and field studies including applicable methods of surveying and the use of aerial photographs. Lectures, laboratory, and field trips. Prerequisites: Geology 1 and 2. One course. Furbish

169. The Marine Environment. For description see Marine Sciences.

171. Marine Sciences Seminar. For description see Marine Sciences.

191, 192. Independent Study. Directed reading and research. Open only to highly qualified juniors and seniors by permission of the Director of Undergraduate Studies. Two courses. *Staff*

For Advanced Undergraduates and Graduates

205. Geological Oceanography. The study of the broad geologic aspects of the ocean basins, including origin, bottom physiography, sediment distribution, and sedimentary processes. Observations in the field will be emphasized and will include training in sampling procedures for both shallow and deep water. Not open to students who have completed Geology 206. (Given at Beaufort.) One and one-half courses. *Pilkey*

206S. Principles of Geological Oceanography. A survey of geological aspects of the oceans including sediment types, processes of sedimentation, geologic structures of the ocean basins, and bottom physiography. Prerequisite: Geology 108 or consent of instructor. One course. *Pilkey*

208. Shallow-Marine Geology. Physical and biological processes responsible for sediment production, accumulation, and alteration in the shallow-marine environment. Prerequisite: Geology 108 or consent of instructor. Given biennially. One course. *Perkins*

211S. Stratigraphic Principles and Application. Prerequisite: Geology 108. One course. *Perkins*

213. Sedimentology. Parameters of sedimentation, sediment classification, and laboratory methods of analysis. Prerequisite: Geology 108 or consent of instructor. Given biennially. One course. *Pilkey*

214S. Sediments in Thin Section. Study of sediments and sedimentary rocks using the petrographic microscope and related techniques. Prerequisite: Geology 213 or consent of instructor. One course. *Perkins*

222. Sedimentary Minerals. Structure and geologic occurrences of selective detrital and authigenic minerals including the clay minerals. Theory and use of X-ray diffraction, differential thermal analysis, and thermal gravimetric analysis. Prerequisite: Geology 102 or consent of instructor. One course. *Heron*

229. Economic Geology. Principles and processes involved when elements are concentrated to economic proportions in magmatic, metamorphic, hydrothermal, sedimentary, or surface environments. Prerequisites: Geology 102. Given on demand. One course. *Furbish*

230. Principles of Structural Geology. Description, origin, and interpretation of primary and secondary geologic rock structures. Prerequisites: Geology 106 and 108. One course. *Shuart*

233. Geochemistry. Application of the principles of chemistry to the solution of problems in geology. Prerequisites: Geology 102 and Chemistry 12. One course. *Shuart*

241-242. Invertebrate Paleontology. Biologic and stratigraphic relationships of fossil invertebrates, with special emphasis on evolutionary trends of invertebrates as interpreted from fossil evidence. Lectures and laboratory. Prerequisites: Geology 1, 2, or consent of instructor. Given biennially. Two courses. *Lynts*

243-244. Micropaleontology. Microscopic animal and plant fossils, ex-

clusive of spores and pollen, with special emphasis on their biology, taxonomy, evolution, and stratigraphic distribution. Lectures and laboratory. Prerequisites: Geology 241-242, or consent of instructor. Given biennially. Two courses. Lynts

247. Paleoecology. Application of ecologic and geologic principles to the reconstruction of the interrelationship between organisms and their environment in geologic time. Prerequisites: Geology 213, 242, or consent of instructor. Given biennially. One course. Lynts

DEPARTMENTAL MAJOR

The A.B. Degree

Prerequisites. Geology 1 and 2, Chemistry 11 and 12 and Mathematics 31 and 32.

Major Requirements. A minimum of 8 geology courses above the introductory levels, including 101, 102, 106, 108, 164, 211, and 230.

The B.S. Degree

The Department of Geology offers two programs:

1. Geology

Prerequisites. Geology 1 and 2, Chemistry 11 and 12, Mathematics 31, 32, and 51.

Major Requirements. A minimum of 10 courses, above introductory level including 101, 102, 106, 108, 211, 230, plus a field course normally taken during the summer of the junior year.

2. Geology: Preparatory to Advanced Studies in Oceanography

Prerequisites. Geology 1, 2, and 53 (or 206), Chemistry 11 and 12, Physics 51 and 52, Biology 11 and 12 or Biology 14, calculus and 3 courses of science electives.

Major Requirements. A minimum of 7 geology courses above the introductory levels, including 101, 102, 106, 108, 164, 211S, and 230.

Germanic Languages and Literature

Professor Phelps, *Chairman*; Associate Professor Novak, *Director of Undergraduate Studies*; Assistant Professor Bessent, *Supervisor of Freshman Instruction*; Professor Salinger; Associate Professor Borchardt; Assistant Professors Alt and Stern; Visiting Assistant Professor Johns; Instructors Dishman and Von Ramm

1-2. Elementary German. Practice in understanding, speaking, reading, and writing. Classroom techniques are combined with those of the language laboratory. Two courses. *Bessent and Staff*

63. Intermediate German. Prerequisite: German 1-2 or equivalent. One course. *Staff*

German 63 is usually followed by 101, 117 or 182.

101. Introduction to German Literature. Readings from representative German authors. One course. *Staff*

103S, 104S. Seminars in German Literature in English Translation. Topics to be specified each semester. Two courses. *Staff*

105. Composition. Syntax with practice in the elements of German expository style, restricted to majors. One course. *Staff*

109S. Nineteenth Century Prose Fiction. Emphasis on shorter forms: Novelle, fairytale, legend. One course. *Alt and Borchardt*

115S. Drama (1770-1890). History of German drama and stagecraft from Sturm und Drang to the Freie Bühne. One course. *Alt*

117, 118. German Conversation and Composition. Primarily conversation with practice in writing. For German majors and other students by consent of instructor. Two courses. *Bessent*

119S. German Literature to the Goethezeit. Survey of German literature and its cultural backgrounds from the beginning through the Enlightenment. One course. *Alt and Novak*

125, 126. The Moderns. Problems and authors from Nietzsche and naturalism through expressionism to the present. Two courses. *Alt and Novak*

130. German Life and Thought. German cultural and intellectual history. Reading and discussion in English. One course. *Borchardt*

131. Goethezeit. Goethe and his contemporaries: representative texts and the philosophical background. One course. *Novak*

132. The Romantics. Major writers of the Romantic movement (1796-1830) considered in their national and international context. One course. *Salinger*

133S. The Lyric. Development of German lyric poetry from Goethe to Rilke. One course. *Alt and Salinger*

171. German Literature before 1900 in English Translation. One course. *Borchardt.*

172. Modern German Literature in English Translation. Representative works by such writers as Mann, Kafka, Hesse, Brecht, Böll, and Grass. One course. *Borchardt and Salinger*

181, 182. German. An intensive introduction to the language open only to students who have achieved proficiency in another language. Two courses. *Novak*

191, 192. Independent Study. Directed reading and research. Open only to qualified students in the junior year, by permission of the department. Two courses. *Alt, Borchardt, Novak, Phelps, Salinger, and Stern*

193, 194. Independent Study. Directed reading and research. Open only to qualified students in the senior year, by permission of the department. Two courses. *Alt, Borchardt, Novak, Phelps, Salinger, and Stern*

201S, 202S. Goethe. A study of his life and works, in the light of his lasting significance to Germany and world literature. First semester: lyrics, prose, fiction, and selected dramas; second semester: *Faust I & II*. Two courses. *Phelps*

203S, 204S. Eighteenth Century. Eighteenth century German literature in its relation to European intellectual currents of that time. Two courses. *Phelps*

205, 206. Middle High German. The language and literature of Germany's first classical period. Two courses. *Stern*

207S, 208S. German Romanticism. The principal writers of the period from 1800 to 1850. Two courses.

209S, 210S. Kleist, Grillparzer, and Hebbel. The development of the drama in Germany and Austria between Schiller and naturalism. Two courses. *Alt and Salinger*

211S, 212S. Nineteenth Century Literature. From the end of romanticism through realism. Two courses. *Alt*

213S. Heinrich Heine. A study of the poet and his impact on his age. One course. *Salinger*

214S. The Twentieth Century. Literature of the twentieth century presented through representative authors. One course.

215S. Seventeenth Century Literature. A study of the leading writers of the Baroque, viewed against the background of their time. One course. *Borchardt*

216. History of the German Language. The development of the phonology, morphology, and syntax of German from earliest beginnings to the present. One course. *Stern*

217S. Renaissance and Reformation Literature. The period from 1400 to about 1600. One course. *Borchardt*

218S. The Teaching of German. A survey of modern teaching techniques: problems in the teaching of German on the secondary and college levels. Analysis and evaluation of textbooks and related audiovisual materials. One course. *Phelps*

219. Applied Linguistics. Phonology, morphology, and syntax of German. Introduction to the systematic study of the vocabulary of modern German. By permission of instructor. One course. *Stern*

232. Criticism and Literary Theory. Critical concepts, craft of interpretation, and readings from the great critics. One course. *Alt and Borchardt*

DUTCH

181, 182. Dutch. Intensive introduction to the language of the Netherlands. Modern readings. Completion of second year college level (or equivalent) of another foreign language will normally be required. Two courses. *Stern*

191, 192. Independent Study. Directed reading and research for qualified juniors by permission of the department. Two courses. *Stern*

193, 194. Independent Study. Directed reading and research for qualified seniors by permission of the department. Two courses. *Stern*

DEPARTMENTAL MAJOR.

Prerequisites. Elementary and Intermediate German.

Major Requirements. Conversation and Composition (German 117, 118), or equivalent, plus 6 advanced courses in the German Department, 3 of which must be on the 200-level. The following courses may not be used to fulfill major requirements: 103S, 104S, 171, 172, 181, 182.

Greek

For courses in Greek, see *Classical Studies*.

Health and Physical Education

PHYSICAL EDUCATION FOR MEN

Professor Friedrich, *Chairman of Health and Physical Education*; Associate Professor Skinner, *Director of Undergraduate Instruction*; Assistant Professor Corrie, *Director of Intramurals*; Assistant Professor Riebel, *Supervisor of Freshman Instruction*; Professor C. Falcone; Associate Professors Buehler, Cox, and Persons; Assistant Professors Harvey, LeBar, and Riebel; Assistant Instructors J. Falcone, Dainis, and Myers

Required Courses

Two semesters of physical education is required for graduation unless a student is excused for medical reasons. The requirement is met by the satisfactory completion of two semesters of physical education activity courses or by an alternate form of activity approved by the Men's Physical Education Department. This work will normally be completed in the freshman year.

All students are given a medical and physical examination before registration. Freshmen who have physical disabilities which prevent them from participating in regular classes, should register for P.E. 11-12, Adapted Physical Education. Students who do not pass the basic swimming test are expected to register for P.E. 20, Beginning Swimming, during the spring semester of the freshman year.

Physical education courses and independent activities are graded on an A,B,C basis. These grades are not counted toward continuation, graduation, or honors; neither are physical education required courses counted among the 32 courses needed for graduation

11-12. Adapted Physical Education. Instruction adapted to the needs and capacities of students who have physical disabilities which prevent them from participating in regular physical education classes. No course credit. *Staff*

20. Beginning Swimming. This requirement may be waived by passing a departmental swim test.

Freshman Activity Courses

The activity courses listed below are electives for the freshman year. No course credit.

15. Individual Development
21. Intermediate Swimming
25. Swimming and Life Saving
26. Advanced Swimming and Water Safety
30. Golf (\$25.00 fee)
32. Handball/Paddleball/Squash
33. Fencing-Archery
35. Soccer-Lacrosse
37. Badminton/Archery
40. Tennis-Volleyball
41. Gymnastics
42. Combatives

Elective Activity Courses for Men

The activity courses listed below may be taken as electives on a pass-fail basis provided the following requirements are met: (1) They must be different or more advanced than courses the student has taken previously. (2) The student must enroll in two semesters of activity courses in order to receive a

half-course credit. (3) The maximum amount of credit which a student may earn for elective physical activity courses is 1 full course. Prerequisites: two semesters of required physical education.

- 100-101—Adapted Physical Education
- 110-111—Individual Development
 - 125—Swimming and Life Saving
 - 126—Advanced Swimming and Water Safety
 - 127—Scuba Diving
 - 130—Golf (\$25.00 fee)
 - 132—Badminton/Paddleball/Squash
 - 133—Fencing/Archery
 - 137—Badminton/Archery
 - 140—Tennis/Volleyball
 - 141—Gymnastics
 - 142—Combatives

Certain non-credit departmental sponsored activities may be scheduled during the year. Included in this group of activities are: sailing, bowling, skiing, judo, and an outward bound program. Options for various coeducational Physical Education classes are also available.

Elective Professional Courses

Two courses listed below are arranged to meet the increasing demand for teachers who are qualified to coach and teach physical education as well as for those who may have leadership responsibilities in the area of recreation. These courses are open as electives for students in high school teaching programs and others for whom such courses may be appropriate. Teaching majors may elect semester-courses in this group. Two semester-courses may be elected from the courses listed under Special Methods in Physical Education; 3 from the courses listed under Theory and Practice in Physical Education; and 1 from Health Education. The courses must be selected with the prior approval of the director of undergraduate studies from the student's major department, in order to meet the needs of the individual.

Special Methods in Physical Education

163. Coaching Baseball and Track in Secondary Schools. Theory and practice. Open to juniors and seniors. One course. *Buehler and Butters*

164. Coaching Basketball and Football in Secondary Schools. Theory and practice. Open to juniors and seniors. One course. *Falcone and Waters*

Theory and Practice in Physical Education

170. History and Principles of Physical Education and Sports. The objectives and scientific principles upon which physical education is based. This history of physical education is studied in order to show the changes in objectives, principles, and methods and as an aid in the interpretation of trends. One course. *Friedrich*

171. Recreational Administration and Leadership. Theories and philosophies of play and recreation with emphasis on leadership and application to community organizations, school, and family situations. One course. *Friedrich*

172. The Administration of Physical Education and Athletics in Secondary Schools. A case study of appraisal of athletic, health, and physical education problems experienced in the organization and administration of athletics, health, and physical education. Open to juniors and seniors. One course. *Friedrich*

173. Protective Practices in Physical Education. Safety and protective measures, including training and rehabilitation. Open to juniors and seniors. One course. *Staff*

Health Education

174. School Health Problems. Includes topics such as physical screening, communicable disease prevention and control, and healthful school environment. One course. *Friedrich*

PHYSICAL EDUCATION FOR WOMEN

Professor Elizabeth C. Bookhout, *Chairman*; Professor Lewis, *Director of Undergraduate Studies*; Associate Professors Eddy, Spangler, Uhrhane, and Woodyard; Assistant Professors Lloyd, Raynor, and Wray; Instructor White; Part-Time Instructors Dainis and Simpson

Required Physical Education Activity Courses

One year of physical education is required for graduation unless a student is excused for medical reasons. The requirement is met by satisfactory completion of two semesters of physical education activity courses or by an alternate form of activity approved by the Women's Physical Education Department. The work will normally be completed in the freshman year. Those who are unable to pass a survival swimming test which is given during Freshman Week must take a swimming course; otherwise, students select activity courses appropriate to their interests and backgrounds. The physical education activity courses and independent activity are conducted on a pass-fail basis.

1-2. Freshman Activity Courses. Each semester students take a full-semester or 2 half-semester activity courses selected from those listed below. They take a beginning, intermediate, or advanced section according to their skill background. No credit. *Staff*

Full Semester Courses

Modern Dance: Beginning, Intermediate I, Intermediate II, Advanced, and Choreography
Tennis
Water Safety Instructor's Course
Independent Activity (With the approval of the department.)

Half-Semester Courses

Adapted P.E. (for students restricted from full activity)	Movement Awareness
Archery: Beginning	Senior Life Saving
Badminton: Beginning and Intermediate	Soccer
Basketball: Intermediate and Advanced	Softball
Bowling: Beginning and Intermediate	Square Dance
Conditioning Exercises	Swimming: Beginning, Intermediate, High Intermediate, Advanced, and Synchronized
Equitation: Beginning and Intermediate	Tap Dance: Beginning
Equitation: Advanced Hunt Seat	Tennis: Beginning, Intermediate, High Intermediate, and Advanced
Fencing: Beginning and Intermediate	Track and Field
First Aid	Trampoline and Floor Exercise
Folk Dance	Volleyball
Golf: Beginning and Intermediate	Independent Activity (With the approval of the department.)
Gymnastics: Beginning and Intermediate	
Hockey	
Jogging	

Elective Physical Education Activity Courses

61-62. Sophomore Activity Courses. Students may take, as electives, the following activity courses if they are different or more advanced than activity courses taken to fulfill the physical education requirement. Prerequisite: P.E. 1-2. Half-course per year. *Staff*

161-162. Junior and Senior Activity Courses. Students may take, as electives, the following activity courses if they are different or more advanced than activity courses taken previously. Prerequisite: P.E. 1-2. Half-course per year. *Staff*

Elective Activity Courses*

Adapted Physical Education	Senior Life Saving
Badminton: Beginning and Intermediate	Swimming: Beginning, Intermediate, Advanced, and Synchronized
Fencing: Beginning and Intermediate	Tennis: Beginning, Intermediate, High Intermediate, and Advanced
Folk Dance: Philippine, Russian, Balkan, Israeli, and Scandinavian	Volleyball
Golf: Beginning, Intermediate, and Advanced	Water Safety Instructor's Course
Gymnastics: Beginning and Intermediate	
Modern Dance: Beginning, Intermediate I, Intermediate II, Advanced, and Choreography	

Non-Credit Activity Courses

151, 152. Non-Credit Elective Activity Courses. Open to upperclass women who have fulfilled the physical education requirement. No credit. *Staff*

Theory Courses in Physical Education

The courses listed in this section are open as electives to undergraduate men and women. The following courses meet distributional requirements in the social science division: P.E. 113D, 114, 130S, 131S, 133, and 195S.

102. Physical Education for Early Childhood. Theory and practice in teaching basic skills, rhythms, and games to young children in grades K-3. Half-course. *Lewis*

103. Physical Education for the Intermediate Grades. Planning, organizing, and conducting physical education programs for children in grades 4-9. Half-course. *Lewis*

105. Group Leadership in Recreation. Interaction and group dynamics. Open to sophomores, juniors, and seniors. One course. *Simpson*

106. Methods and Materials in Recreation. Development of leadership skills in crafts, rhythmic activities, social recreation, and dramatics. Laboratory work includes experience with an organized recreational group. Open to sophomores, juniors, and seniors. One course. *Simpson*

113D. Anatomical Bases for Human Movement. The function of bones, joints, and muscles in human movement. One course. *Bookhout*

114. Kinesiology. A study of muscle function and analysis of human movement. Prerequisite: Physical Education 113D or Zoology 53. One course. *Bookhout*

117. Adapted Physical Education. Analysis of exercises and activities appropriate to individual needs. Theory and practice in planning and conducting adapted programs. Half-course. *Bookhout*

*The maximum amount of credit which a student may earn for elective physical education activity courses is 1 full course.

130S, 131S, 133S. History of Dance. Emphasis on form, structure, and content related to culture of eras. P.E. 130S, Prehistoric to Duncan; P.E. 131S, Duncan to Cunningham; P.E. 133S, Cunningham to the present. Three courses. Wray or White

132. Creative Movement for Children. Basic theory and experience in creative movement for grades K-12. The study of the classification and elements of movement with observation and practical experiences with children. Recommended for those students interested in dance, music, recreation, and elementary and secondary teaching. One course. Wray

135, 136. Principles of Contemporary Dance Composition. Prerequisite: Beginning Modern Dance and Intermediate Modern Dance I or permission of instructor. Two courses. White or Wray

139. Movement Connotations. Theories and forms of human movement with emphasis on sensory awareness and non-verbal communication. One course. Wray

191, 192. Independent Study. Directed reading and research. Open to highly qualified juniors and seniors. Two courses. Staff

195S. Recent Research in Physical Education and Related Fields. One course. Staff

HEALTH EDUCATION COURSES (MEN AND WOMEN)

The following health education courses meet distributional requirements in social science: H.E. 137S, 138S, 140S, and 170T.

134. School Health. Organization of the school health program; basic health problems in school; methods and materials for teaching about health. Primarily designed for students preparing to teach in elementary or secondary schools. Open to men and women. Juniors and seniors only. Half-course. Urrhane

137S. Health in Developing Countries. Health conditions, practices, and problems interacting with economics, productivity, and progress of emerging nations with some emphasis on African states. One course. Urrhane

138S. Health Problems in Metropolitan Areas. Relationships between urbanization and health illustrated by environmental hazards, population motion, food distribution, housing, city planning, poverty, drug usage, and consumer awareness. One course. Urrhane

140S. Gereology and Health. Health implications in relationships within families and between generations in the changing role of the elderly in modern society, in retirement, and in extended leisure time; illness, disability, and medical care. One course. Urrhane

170T. Special Health Problems. Problems and issues in health affairs selected by students for concentrated study. One course. Urrhane

191, 192, 193, 194. Independent Study. Prerequisite: consent of instructor. One course each. Urrhane

History

Professor Colton, Chairman; Professor Hollyday, Director of Undergraduate Studies; Associate Professor Mauskopf, Supervisor of Freshman Instruction;

Professors Alden, Durden, Ferguson, Holley, Lerner, Parker, Preston, Ropp, A. Scott, W. Scott, Silberman, TePaske, Watson, and Young; Associate Professors Acomb, Brieger, Cahow, Cell, Davis, Hartwig, Nathans, and Witt; Assistant Professors Bergquist, Calkins, Chafe, Dirlik, Gavins, and Miller; Instructors Landau and Rolf; Part-time Instructors Crow and Richardson; Adjunct Assistant Professor Goodwyn

PREREQUISITE COURSES

Majors take a year sequence of 2 prerequisite courses in history (21-22, 21S-22S, 53-54, 91-92, 175D-176D), beginning either semester. Other students are urged, but not required, to take two semesters of prerequisite courses before proceeding to advanced-level courses. Additional courses may be chosen from this group as electives or part of the departmental major.

21, 22. Europe Past and Present. Development and world impact of European civilization; critical evaluation of historical interpretations; investigation of history from primary sources. First semester to the eighteenth century. Second semester to the present. Two courses. Acomb, Bergquist, Cell, Ferguson, Hollyday, Landau, Mauskopf, Miller, Parker, Richardson, Witt, and Young

21S, 22S. Europe Past and Present. A seminar version of History 21, 22. Two courses. Staff

53. Greek History. (Listed also as Classical Studies 53.) One course. Nixon

54. Roman History. (Listed also as Classical Studies 54.) One course. Nixon

91. The Development of American Democracy to 1865. A study of the trends vital to an understanding of the United States today. The main theme is the development of American democracy. Problems of foreign policy, the growth of capitalism, political practices, social reform, and conflicting ideals are considered in relation to this main theme. One course. Cahow, Chafe, Crow, Davis, Durden, Gavins, Holley, Nathans, and A. Scott

92. The Development of American Democracy, 1865 to the Present. A continuation of History 91 with emphasis upon the emergence of contemporary problems in the United States. One course. Cahow, Chafe, Crow, Davis, Durden, Gavins, Holley, Nathans, and A. Scott

175D, 176D. Introduction to Asia, Africa, and Latin America. Societies in change. Traditional ideas and institutions of selected areas; effects of modernization. Two courses. Calkins, Dirlik, Hartwig, Silberman, and TePaske

OTHER UNDERGRADUATE COURSES

101, 102. Introduction to the Civilizations of Southern Asia. (Also listed as Interdisciplinary Course 101, 102.) One course. Calkins

103, 104. Renaissance and Reformation. Europe 1250-1600. Two courses. Witt

105, 106. Political and Constitutional History of England. The origins and evolution of the principal institutions of the English government, related to their setting in a changing society. Two courses. Landau

107, 108. Social and Cultural History of England. English history from the fourteenth century to the present time in an effort to arrive at a synthesis of

ideas, social conditions, and political events and thus provide a background for the study of English literature. Two courses. *Ferguson*

113, 114. The United States from the 1890's to World War II. First semester to 1920; second semester through the New Deal. Two courses. *Watson*

115, 116. History of Africa. Social, political, and economic development in tropical Africa. First semester: cultural background and pre-colonial history. Second semester: colonial and contemporary times. Two courses. *Hartwig*

117, 118. European Imperialism and Colonialism. The age of discovery, the new imperialism, and modernization of post-colonial societies. Two courses. *Cell*

119, 120. History of Socialism and Communism. The origins and development of socialist and communist movements from pre-Marxian times to the present. Two courses. *Lerner*

121, 122. Diplomatic History of the United States. Emphasis on those factors, foreign and domestic, that have shaped the foreign policies of the Republic. Two courses. *Davis*

123, 124. City and Frontier in United States History. The westward movement and the progress of urbanization with attention to the social and political consequences. Two courses. *A. Scott*

125. The Athenian Empire. (Also listed as Classical Studies 134.) One course. *Staff*

126. Alexander the Great. (Also listed as Classical Studies 135.) One course. *Staff*

128. The United States and Latin America. Economic, cultural, political, and diplomatic relationships in the twentieth century. One course. *Bergquist*

129, 130. Society and Government in the United States 1789-1877. Two courses. *Nathans*

131. Mexico and the Caribbean from the Wars of Independence to the Present. One course. *TePaske*

132. Comparative Development of Major South American Nations, 1850 to the Present. Brazil, Argentina, Chile, and Columbia, their separate evolutionary paths and approaches to economic and social crises. One course. *Bergquist*

133, 134. Medieval History. Europe, 300-1500. Two courses. *Young*

135, 136. Europe in the Twentieth Century. Political, economic, and intellectual developments in Europe since 1900. First semester to 1933; second semester to the present day. Two courses. *Colton*

137, 138. Foreign Relations of the European Powers. European diplomacy and Europe's position in the world since 1870, with an introductory survey of diplomatic institutions since the Renaissance. Two courses. *W. Scott*

139, 140. Nineteenth Century Europe. With special attention to Germany and Austria-Hungary, this course emphasizes the development of European nationalism and the clash of freedom and authority. Two courses. *Hollyday*

141. Man and Society in Traditional China. Chinese thought and institutions from earliest times to the nineteenth century. One course. *Dirlik*

142. The Roots of the Revolution. Nineteenth and twentieth century China. One course. *Dirlik*

143, 144. History of Modern Japan. Japan from 1600 to the present; the transition from the traditional to the modern state. Two courses. *Silberman*

145, 146. Afro-American History. The Black experience in America from slavery to the present. Two courses. *Gavins*

147. History of India to 1707. Early development, classical Hindu civilization, the impact of Islam, first modern contacts. One course. *Calkins*

148. History of India and Pakistan, 1707 to the Present. Decay of the Mughal Empire, social and economic impact of Western rule, development of nationalism and independence. One course. *Calkins*

149. Military History. War, politics, and technology. (Also listed as Aerospace Studies 102.) One course. *Ropp*

150S. The Concept of the Democratic Faith. One course. *Cahow*

151. Modern Technology. Emphasis on Western technology in the nineteenth and twentieth centuries as related to political, economic, and scientific trends. One course. *Ropp*

152. Issues and Problems in Twentieth Century South America. Revolution, national identity, myth and reality of caudilloism, imperialism, ideology left and right, and nationalism. Readings in English or Spanish. (Also listed as Romance Languages 152.) One course. *Fein and TePaske*

155, 156. Modern Latin America. First semester: nineteenth century; second semester: twentieth century. Two courses. *Bergquist*

157, 158. The Rise of Modern Science. The development of science and medicine, with attention to cultural and social influences upon science. First semester: through Newton. Second semester: eighteenth to twentieth centuries. Two courses. *Mauskopf*

160. The United States from the New Deal to the Present. One course. *Chafe*

161, 162. History of Russia. From Kievan to Soviet Russia. An exploration into the processes of social change. Two courses. *Miller*

163, 164. Reform and Politics in Nineteenth Century United States. First semester: the coming of the Civil War, with emphasis on the reform movements of the Jackson era, the anti-slavery crusade, and national politics to 1861. Second semester: reform and politics from the war and Reconstruction era to the Farmers Revolt of the 1890's. Two courses. *Durden*

167, 168. Modern European Intellectual and Cultural History. Leading European thinkers from the Enlightenment to the present. Two courses. *Parker*

169, 170. The Search for the American Woman: A New Approach to Social History. Prerequisite: History 91, 92. Two courses. *A. Scott*

173, 174. History of Spain and the Spanish Empire from Late Medieval Times to the Present. First semester: unification and development of the empire in Europe and America, emphasizing colonial institutions and culture, 1450-1670. Second semester: fall of the empire and modern development through the Franco Regime. Two courses. *TePaske*

177. China since 1949: The Peoples' Republic. The Chinese path to communism and the communist transformation of Chinese society. One course. *Dirlik*

183S. Canada from the French Settlement. Problems in the development of Canada and its provinces. One course. *Preston*

184S. Canada: Problems and Issues of an Advanced Industrial Society. (Also listed as Interdisciplinary Course 184S.) One course. *Preston*

199. The Changing South. (Also listed as Interdisciplinary Course 199.) One course. *Goodwyn*

For Upperclassmen and Graduates

Students may receive credit for either semester of a hyphenated course at the 200-level without taking the other semester if they obtain written permission from the instructor.

201-202. History of Russia, 1801-1917. Origins and dynamics of the Russian revolutionary movement, the intelligentsia, and the emergence of political parties. Two courses. *Miller*

207-208. Urban History of the United States. Urbanization in the United States since the Colonial period. Each student is responsible for the history of a particular city, with attention to the emerging methodology of urban studies. Two courses. *A. Scott*

209-210. Selected Topics in Afro-American History, 1619-Present. Critical issues of the collective experience of Afro-Americans with special attention to Black institutional development. Two courses. *Gavins*

212. Recent Interpretations of the United States History. A course designed to encourage a critical evaluation of major issues in United States history through examination of recent interpretations of key problems. (Open only to history graduate students and seniors doing practice teaching in one of their final two semesters.) One course. *Watson and Staff*

215-216. The Diplomatic History of the United States. (Not open to undergraduates who have had History 121-122.) Two courses. *Davis*

221-222. Problems in the History of Late Medieval Europe and Early Modern Europe. Two courses. *Witt*

223S, 224S. The Old Regime, the Enlightenment, and the French Revolution. Political, social, and intellectual trends in seventeenth and eighteenth century Europe, with emphasis on France and the French Revolution. Two courses. *Acomb*

227-228. Recent United States History: Major Political and Social Movements. Two courses. *Chafe*

229. Recent Interpretations of Modern European History. A course designed to develop the ability to appraise critical historical issues through the study and discussion of recent interpretations of key historical problems in modern European history. (Open only to history graduate students and seniors doing practice teaching in one of their final two semesters.) One course. *Colton and Parker*

231S, 232S. Problems in the History of Spain and the Spanish Empire. Two courses. *TePaske*

237S, 238S. Europe in the Middle Ages, 395-1500. Two courses. *Young*

240. Aspects of Traditional and Modern African Culture. Introduction to the oral and written literatures and musical and artistic traditions. One course. *Hartwig*

241-242. Modernization and Revolution in China Since 1850. Two courses. *Dirlik*

247. History of Modern India and Pakistan, 1707-1857. Analysis and interpretation, with special emphasis on social and economic change. One course. *Calkins*

248. History of Modern India and Pakistan, 1857 to the Present. One course. *Calkins*

249-250. Social and Intellectual History of the United States. The interplay of ideas and social practice through the examination of attitudes and institutions in such fields as science and technology, law, learning, and religion. Two courses. *Holley*

253-254. Modern European Intellectual History. Two courses. *Parker*

255S-256S. Problems in African History. Two courses. *Hartwig*

261-262. Problems in Soviet History. Studies in the background of the Revolution of 1917 and the history and politics of the Soviet state. Two courses. *Lerner*

263-264. American Colonial History and the Revolution, 1607-1789. The founding and institutional development of the English colonies; the background, progress, and results of the Revolution. Two courses. *Alden*

265S, 266S. Problems in Modern Latin American History. Two courses. *Bergquist*

267S-268S. From Medieval to Early Modern England. The intellectual, social, and political problems of transition to modern England, with special emphasis on the English Renaissance. Two courses. *Ferguson*

269-270. British History, Seventeenth Century to the Present. Historiography of social structure and social change: English Revolution, party, the Industrial Revolution, class and class consciousness, Victorianism, and the impact of war in the twentieth century. Two courses. *Cell*

273, 274. Topics in the History of Science. Critical stages in the evolution of scientific thought. Two courses. *Mauskopf*

275S, 276S. Central Europe, 1849-1914. Conflict between liberalism and authoritarianism, clash of nationalities, and domestic changes in Germany and Austria-Hungary. Two courses. *Hollyday*

277, 278. The Era of the Civil War in the United States and its Aftermath, 1820-1900. Two courses. *Durden*

279. Oral History. Techniques applied to racial attitudes and problems in the United States. One course. *Goodwyn*

280. Historiography. Great historians since Herodotus and an examination of recent twentieth century trends. One course. *Parker*

281S, 282S. Development of Modern Medicine. Two courses. *Brieger*

283-284. Political and Social Change in the United States, 1789-1880. Two courses. *Nathans*

287-288. History of Modern Japan. The political, economic, and social development of Japan since 1750; factors contributing to Japan's emergence as a modern state. Two courses. *Silberman*

297. The British Empire in the Nineteenth Century. (From 1783.) The development of the empire from the American Revolution to the imperialism that culminated in the South African War. One course. *Preston*

298. The Commonwealth in the Twentieth Century. The origins and evolution of the Commonwealth of Nations and its adjustment in the age of anti-colonialism. One course. *Preston*

SMALL-GROUP LEARNING EXPERIENCES

(For discussion sections, see History 175D, 176D.)

Tutorial

189T, 190T. Tutorial in History. Two courses. *Staff*

Independent Study

Independent study is usually undertaken by students concurrently with a course or with an instructor with whom they have had a course. Students should submit to the instructor in writing a detailed general description of intent in the course. Both the instructor's consent and approval of the Director of Undergraduate Studies are required for enrollment.

191, 192. Independent Study. One or two courses each. *Staff*

UNDERGRADUATE SEMINARS

(See also History 21S, 22S, 150S, 183S, 184S.)

165S-166S. Sophomore Seminar. Open to sophomores on application to the Director of Undergraduate Studies with permission of the instructor. Two courses.

The following seminars are designed to offer opportunities for reading and historical investigation in significant problems. Juniors as well as seniors may apply for admission to these courses and are urged to do so if they expect to be candidates for graduation with distinction in history or if they expect to practice-teach in their senior year. All seminars are open to non-majors as well as to majors.

195A-196A. Renaissance Intellectual History. Studies in the transformation of European thought between 1300 and 1600. Two courses. *Witt*

195B-196B. Twentieth Century Europe. Two courses. *Colton*

195C-196C. Problems in the Social and Intellectual History of the United States. Two courses. *Holley*

195D-196D. Problems in Twentieth Century United States History. Two courses. *Chafe and Watson*

195E-196E. The Age of the American Revolution. Two courses. *Alden*

195F-196F. The Era of the Civil War in the United States and its Aftermath, 1820-1900. (Students may not receive credit for this course and History 163-164.) Two courses. *Durden*

195G-196G. Nationalism and Communism in the Far East. Two courses. *Dirlik*

195H-196H. From Rural to Urban Society in the United States. Two courses. *A. Scott*

195I-196I. Nationalism and Freedom in Nineteenth Century Europe. Two courses. *Hollyday*

195J-196J. Studies in the History of Socialism and Communism. Two courses. *Lerner*

195K-196K. Social Change in Modern Britain. Two courses. *Cell*

195M-196M. Europe and the World since 1914. Two courses. *W. Scott*

195N-196N. The English Renaissance. Two courses. *Ferguson*

195P-196P. Social and Political Problems in English History, 1680-1815.
Two courses. *Landau*

195R-196R. The Age of Newton. Two courses. *Mauskopf*

195S-196S. Processes of Development in Modern Japan, 1800 to the Present. Two courses. *Silberman*

195T-196T. Problems in the History of Russia Before 1917. Two courses.
Lerner and Miller

195U-196U. Social Conflict and Political Change in the United States, 1789-1860. Two courses. *Nathans*

195V-196V. Problems in Afro-American History. Two courses. *Gavins*

195W-196W. Studies in Modern Indian History. Two courses. *Embree*

195X-196X. Problems in Latin American History. Two courses. *Bergquist and TePaske*

195Y-196Y. Issues in the History of Tropical Africa before 1900. Two courses. *Hartwig*

195Z-196Z. Problems in Recent United States Diplomatic History.
Two courses. *Davis*

196.99 History Honors Pro-Seminar. Required in the spring semester of juniors selected for the Senior Honors Seminar of the following year. Conferences on selection of research topics and research techniques. Half-course. *Cell, Holley, and Parker*

197-198. Senior Honors Seminar. A course designated to introduce qualified students to advanced methods of historical research and writing and to the appraisal of critical historical issues. Open only to seniors, but not restricted to candidates for degree with distinction. This course, when taken by a history major, would be in addition to the 2 courses required in 195-196 seminars or 200-level courses of the History Department. Two courses. *Cell, Holley, and Parker*

Upperclassmen-Graduate Seminars

(See History 223S, 224S, 231S, 232S, 237S, 238S, 255S, 256S, 265S, 266S, 267S, 268S, 275S, 276S, 281S, and 282S.)

DEPARTMENTAL MAJOR

Prerequisites. A year sequence of 2 prerequisite courses in history (21-22, 21S-22S, 53-54, 91-92, 175D-176D), beginning either semester.

Major Requirements. Students desiring to take a major in history elect, in addition to the 2 prerequisite courses, 6 courses in the department, including 2 consecutive courses in either an undergraduate seminar (195-196) or on the 200-level. Students wishing to take the more advanced courses in American history are advised to elect History 91-92.

Foreign Languages. Majors interested in a particular area of study would benefit from knowledge of the language of that area. Majors who contemplate graduate work are reminded of the requirement of a reading knowledge of one or two foreign languages.

Majors Planning to Teach. Majors who plan to teach in secondary schools should consult the Education Department. Rising juniors who intend to practice teach in their senior year should take their 195-196 seminar or 200-level course as juniors. Two courses, History 229 in the fall and 212 in the spring, are scheduled in accelerated sessions to fit the half semester the student is on campus during the semester he does practice teaching.

Ancient History. For additional courses in ancient history which may be taken for credit in history, see the history courses listed in the Department of Classical Studies.

Honors. Any student who is qualified (see the section on Honors in this *Bulletin* for general requirements) may undertake work leading to a degree with distinction in history by presenting himself to his history faculty adviser as a candidate. Usually, honors work involves participation in one of the 195-196 seminars during the junior year and selection for the Senior Honors Seminar in the senior year. Further information is available at the History Department office, 236 Allen, West Campus, or 102 West Duke Bldg., East Campus.

House Courses

See page 33 for information about house courses. Since each house course is offered one time only they are not listed or described here.

Interdisciplinary Courses

The following are cooperative courses offered by the departments concerned. Where a department accepts the course for the major, the same number is used as a departmental offering.

101, 102. Introduction to the Civilizations of Southern Asia. Hindu, Islamic, and Buddhist foundations, impact of the West, and emergence of the modern nation-states of Southern Asia. The first semester will analyze traditional Hindu civilization and Islamic impact on Southern Asia. The second semester will examine Western influences and the development of modern societies and states in Southern Asia. Two courses. *Apte, Braibanti, Calkins, Di Bona, Fox, and Lawrence*

104. Man and the Marine Environment. For description see Marine Sciences.

156. The Contemporary Woman: History and Prospects. A survey of the status of women with consideration of cultural, sociological, psychological, and political aspects. Half-course. *Friedel, A. Scott, and J. O'Barr*

158. Women and Literature. Small-group discussions of modern women authors including Virginia Woolf, Doris Lessing, and Anais Nin, and of myths of women in literature and society. Nature of course adapted to the interests of students. This course may be used for distributional requirements in humanities. Prerequisite: permission of the instructor. One course. *Hallahan*

184S. Canada: Problems and Issues of an Advanced Industrial Society. Federal-provincial relations, economic development, environmental and resource problems, American economic and cultural influences, bilingualism and biculturalism, international relations and aid, defence, military relations with the United States, and the "quest for identity." Some seminars conducted by

visiting Canadian specialists. (See Departments of History, Economics, Political Science, and Sociology.) One course. Preston, Goodwin, Hull, Kornberg, Leach, and Smith

199. The Changing South. A survey of the geography, demography, economics, politics, and culture of the South. (See the Departments of Anthropology, Economics, History, Political Science, and Sociology.) One course.

Italian

For courses offered in Italian, see *Romance Languages*

Latin

For courses offered in Latin, see *Classical Studies*.

Linguistics

The courses in linguistics may be taken as electives by advanced students; certain courses serve as related work in several departments (see the entries for related work under the separate departments).

No major is offered in linguistics. Students interested in the study of language as part of their undergraduate program or as a preparation for graduate work in linguistics should consult the instructors of the courses listed below.

For a description of the following courses consult the listings under the specified department.

Introduction to Linguistics. (English and Anthropology 107.) Apte, Butters, Casson, and Hull

Language, Culture, and Society. (Anthropology 119.) Apte and Casson

Linguistic Anthropology: Language Acquisition. (Anthropology 259S.) Casson

Linguistic Anthropology: Phonemics. (Anthropology 260S.) Apte and Casson

Linguistic Anthropology: Morphology and Syntax. (Anthropology 261S.) Apte and Casson

Development of the English Language. (English 108.) Butters

Modern English Grammar. (English 109.) Butters

Old English Grammar and Readings. (English 207.) Nygard

History of the English Language. (English 208.) Nygard

Present-Day English. (English 209.) Butters, Nygard, and Reiss

The Structure of French. (French 210.) Hull

Old French Literature. (French 219.) Vincent

History of the French Language. (French 224.) Hull

Dutch. (German 181, 182.) Stern

Middle High German. (German 205, 206.) Stern

History of the German Language. (German 216.) Stern

Applied Linguistics. (German 219.) Stern

Symbolic Logic. (Philosophy 103.)

Philosophy of Language. (Philosophy 109.) Welsh

Old Spanish Language. (Spanish 257.) Davis

Management Sciences

Professor Laughhunn, *Chairman*; Assistant Professor Kuhn, *Director of Undergraduate Studies*; Professors Baligh, Dickens, Joerg, Keller, and D. Peterson; Associate Professors Baker, Battle, Burton, and Dellinger; Assistant Professors Aldrich, Damon, Maier, R. J. Petersen, Vander Weide, and Zalkind

The courses offered by the Department of Management Sciences stress conceptual understanding of, and analytical reasoning related to, problems of modern management, and the relationship between the performance of complex organizations and the society in which they operate.

50. Elementary Theory of Economic Enterprise. Analysis of the internal resource allocation problem of the enterprise, of market structures, and the relationship between the two. Topics include marginal analysis, theories of competitive market structures, and introduction to special problems of finance, marketing, and production. Prerequisite or corequisite: Math 32. One course.

50P. Preceptorial. Elective preceptorial for students enrolled in Management Sciences 50. *Staff*

55. Quantitative Analysis for Management. Some mathematical theory and techniques used in the study of economic enterprise, such as classical optimization, optimization under constraints, introductory matrix and linear algebra, basic probability theory, special probability distributions. Not open to students who have had Economics 54, Mathematics 73, or Mathematics 135. Prerequisite: Math 31. One course.

100. Introduction to Financial Accounting. Conceptual framework of external reporting, focusing on the nature and purpose of accounting, the measurement of status and activity in economic terms and the interpretation of published financial statements. Prerequisite: sophomore standing. One course.

110. Statistics for Management Decisions. Fundamentals of classical and Bayesian statistical analysis and elementary decision theory. Application of statistical analysis to decision problems. Topics include a review of sampling distributions, point and interval estimation, hypothesis testing, decision theory, and regression and correlation analysis (including computer routines). Not open to students who have had Management Sciences 60, Economics 138, or Mathematics 136. Prerequisites: Management Sciences 55, Mathematics 135, or Economics 54. One course.

111. Investment Management. Problems of selecting a portfolio of investments emphasizing the economics of the markets and the tools of analysis. Prerequisites: Management Sciences 50 and 110 or equivalents, or consent of the instructor. One course.

120. Organization Theory. Introduction to recent theories of, and research on, the structure and behavior of complex organizations, with special reference

to business firms. Topics to be covered include: rationality, authority, bureaucracy, and other concepts; power, decision-making, informal organization, organization change, and other internal process phenomena; effects of technology, culture, and other environmental influences; brief consideration of organization design. Prerequisites: Management Sciences 50, 55 or equivalent. One course.

125. Management of Public Enterprises. Resource allocation within and among major public sector projects in a mixed economy. Emphasis on non-market decision-making for governmental agencies and other nonprofit organizations. Prerequisite: junior standing or Management Sciences 50 or Economics 52. One course.

130. Information Systems. An analysis of the data needed for economic decisions relating to business enterprises and of the systems used in accumulating, analyzing, interpreting, and presenting the data to various users. Financial reporting to external users and managerial use of information for decision-making are stressed. Prerequisites: Management Sciences 50, 55, or equivalent. One course.

140. Operations Research. Introduction to the use of mathematical models in the analysis of decision problems. Topics include mathematical programming, game theory, dynamic programming, queuing theory, simulation, and inventory models. Use of electronic computer will be included. Prerequisites: Management Sciences 50, 55, or equivalent, and computer programming competence. One course.

191, 192. Independent Study. Directed reading and research. Approval of the instructor and the Director of Undergraduate Studies required.

193, 194. Independent Study. Same as 191, 192 but for seniors.

210S. Intermediate Theory of Economic Enterprise. Introduction to competitive market strategies and cooperating decisions and analysis of the efficiency and equilibrium of market structures. Emphasis is on the effects of the economic environment on the decision of the enterprise, and conversely. Prerequisites: Management Sciences 120, 130, and 140. One course.

211S. Finance. An analysis of the problems of management of the financial affairs of the firm with particular attention to the long-term capital needs and the development of an optimal capital structure. Prerequisites: Management Sciences 120, 130, and 140, or permission. One course.

213S. Marketing. An examination of public policy and the marketing behavior of private enterprise and the creation of a marketing program for the firm. Prerequisites: Management Sciences 110, 120, 130, and 140, or permission. One course.

215S. Production. An economic and social analysis of the problems of designing a production system for an organization, of operating within the constraints of a given production system, and of the interactions between a production system and other components of the organization and with society. Prerequisites: Management Sciences 110, 120, 130, and 140, or permission. One course.

220S. Advanced Organization Theory. Continuation of Management Sciences 120S, but with extension to nonmarket organizations such as labor unions, universities, hospitals, and governmental units. Special emphasis will be placed on the following topics: development and testing of mathematical models of organization; optimum organization design; treatment of

organization as political coalitions, using game theoretic concepts; consideration of the social choice questions. Prerequisites: Management Sciences 120, 130, and 140, or permission. One course.

230S. Controllership. An analysis of the use of accounting information in the planning, control, and decision-making process in the business enterprise. Topics include methods of cost accumulation, development of standards, the basic patterns of cost behavior, budgeting techniques for aiding long-range planning and the making of specific decisions. Prerequisites: Management Sciences 120, 130, and 140, or permission. One course.

231S. Financial Accounting. An in-depth analysis of the requirements of outsiders (investors, auditors, unions, and governments) for information about the status and operations of firms and a framework for disclosure of the relevant data. Prerequisites: Management Sciences 120, 130, and 140, or permission. One course.

232S. Internal Control and Auditing. An analysis of the accounting control system and the independent auditor's examination of that system and other evidence as a basis for expressing an opinion on a client's financial statements. Topics include basic audit objectives, standards, ethics, terminology, procedures, and reports. Prerequisites: Management Sciences 110 and 231, or permission. One course.

233S. Federal Income Taxation. A study of the principles of federal income tax laws as related to corporations and individuals. Tax planning and the effect of tax law on business decisions will be emphasized. Prerequisite: Management Sciences 231 or permission. One course.

234, 235, 236. CPA Preparation. Intensive preparation for the Certified Public Accountant's Examination, including fundamental principles of commercial law, advanced accounting problems, and accounting theory. Prerequisites: Management Sciences 230 and 231 or permission. (Those who do not wish credit may take Management Sciences 234, 236 for \$40.00 per semester.) One course each.

240S. Advanced Operations Research. The application of operations research methodology to real world problems. Special emphasis will be placed on problem formulation, model-building, model validation and evaluation, sensitivity analysis, interpretation of results, and implementation. Prerequisites: Management Sciences 120, 130, and 140, or permission. One course.

241S. Decision Theory. A study of the structure of decision problems arising in the operation of an organization, alternative decision criteria, and the development of decision rules for rational behavior. Included will be an investigation of decision-making under certainty risk, and uncertainty, decision-making in competitive situations, and the cost and value of information. Prerequisites: Management Sciences 110, 120, 130, and 140, or permission. One course.

289S. Research Methodology. Philosophy and logic of research in the social sciences (nature of explanation; normative and positive theories; functional, rational, and conflict models); theory development and model construction (including attention to testability of inferences, problems of identification, etc.); experimental design, data collection, and data analysis (including attention to problems of uncontrolled experiments, sampling theory, comparison of case studies, survey research, field experiments, use of published data). Prerequisites for management sciences majors: Management Sciences 120, 130, and 140. For nonbusiness majors; one semester of statistics,

computer programming, one upper-level mathematics course, and at least 3 social science courses beyond the introductory level. One course.

DEPARTMENTAL MAJOR

The Department of Management Sciences offers specialization in two areas—accounting and management science. Each program requires that the student take the same prerequisite courses.

Prerequisites and Corequisites Required of All Majors in the Department. Mathematics 31, 32.

Required Courses. Management Sciences 50, 55, 110, 120, 130, 140, and 210, plus one elective from 200-level courses. The elective work required for specialization in accounting includes Management Sciences 230, 231, 232, and 233.

Marine Sciences—The University Program

Professor Costlow, Director; Professors Bookhout (Zoology), Johnson* (Botany), and Pilkey* (Geology); Associate Professors Barber (Zoology) and Searles* (Botany); Assistant Professors Baier (Chemistry), Blankley (Botany), Forward (Zoology), Gutknecht (Physiology), Sullivan (Biochemistry), and Sutherland (Zoology)

The interdisciplinary program in the marine sciences makes it possible for qualified juniors and seniors to live and study at the Duke University Marine Laboratory, Beaufort, North Carolina, during the spring term. The semester program consists of 2 courses (104 and 150 or 169) and a seminar, in addition to independent research. The design of the program permits a student to continue study at the Marine Laboratory during the summer either by participating in advanced courses or by continuing the independent studies initiated during the spring term.

Applications are to be submitted by October 7 to the Director, Duke University Marine Laboratory, Beaufort, North Carolina 28516, and should include two letters of recommendation, one of which must be from the director of undergraduate studies of the student's major department. A current transcript is also required. The review committee will be composed of the Director of the Laboratory and the directors of undergraduate studies of the participating departments. Students will be notified of the action of the committee prior to registration for the spring semester.

SPRING COURSES AT BEAUFORT

104. Man and the Marine Environment. Economic, legal, medical, political, social, and scientific viewpoints on the extent to which modern society has affected the marine environment with special emphasis on problems of coastal North Carolina. Lectures and laboratories. Prerequisites: permission of instructor and director of undergraduate studies of student's major department. (Listed as Interdisciplinary Course 104). One course. Costlow and Staff

150L. Physiology of Marine Organisms. Comparative studies including special ecological and behavioral adaptations. Lectures and laboratories. A student may not receive credit for both Zoology 150L and 250L. Prerequisites: college biology and chemistry; consent of instructor and director of undergraduate studies of student's major department. (Listed as Zoology 150L.) One course. Forward

*In residence during summer only.

169L. The Marine Environment. The interrelationships of the geological, chemical and biological aspects of the estuarine and oceanic environments. Lectures and laboratories. Prerequisites: introductory chemistry and consent of instructor and director of undergraduate studies. (Listed as Botany 169, Geology 169, and Zoology 169.) One course. Sutherland

296S. Seminar. Topics, instructors, and course credits announced each semester. (Listed as Zoology 296S.) Staff

Independent Study (credit value of 1½ courses) is to be registered for under the appropriate course number of the student's major department.

SUMMER COURSES AT BEAUFORT

114L. Introduction to Biological Oceanography. Physical, chemical, and biological processes of the oceans, emphasizing special adaptations for life in the sea and factors controlling distribution and abundance of organisms. Not open to students who have had Geology 53 or Botany 53. Prerequisite: college biology. One and one-half courses. Staff

For descriptions of the following summer courses consult the listings under the specified departments or the *Bulletin of the Duke University Marine Laboratory*.

202. Introduction to Comparative Behavior. (Listed as Zoology 202.) One and one-half courses. Salmon (*Visiting Summer Faculty*)

203. Marine Ecology. (Listed as Zoology 203.) One and one-half courses. Sutherland

205. Geological Oceanography. (Listed as Geology 205.) One and one-half courses. Pilkey

205. Introductory Marine Microbiology. (Listed as Botany 205.) One and one-half courses. Blankley

211. Marine Phycology. (Listed as Botany 211.) One and one-half courses. Searles

212. Marine Membrane Physiology. (Listed as Physiology 212.) One and one-half courses. Gutknecht, Schoffeniels, Wachtel, and Staff

214. Biological Oceanography. (Listed as Zoology 214.) One and one-half courses. Barber

240. Chemical Oceanography. (Listed as Chemistry 240.) One and one-half courses. Baier

250. Physiological Ecology of Marine Animals. (Listed as Zoology 250.) One and one-half courses. Forward

274. Marine Invertebrate Zoology. (Listed as Zoology 274.) One and one-half courses. Staff

276. Comparative and Evolutionary Biochemistry. (Listed as Biochemistry 276.) One and one-half courses. Sullivan

277. Endocrinology of Marine Animals. (Listed as Zoology 277.) One and one-half courses. Hagadorn (*Visiting Summer Faculty*)

278. Invertebrate Embryology. (Listed as Zoology 278.) One and one-half courses. Bookhout

Mathematics

Professor Warner, *Chairman*; Professor Dressel, *Director of Undergraduate Studies*; Instructor Smith, *Supervisor of Freshman Instruction*; Professors Carlitz, Murray, Reed, Shoenfield, and Weisfeld; Associate Professors Burdick, Hodel, Kitchen, Kraines, Moore, Scoville, Smith, and Stackelberg; Visiting Associate Professor Jockusch; Assistant Professors Henson, Lees, MacKichan, Myers, O'Fallon, Wilkinson, and Wong; Lecturer Cleveland; Instructors Ekman and Katz; Part-time Instructors V. Kraines and Swain

19. Pre-Calculus Mathematics. Selected topics in algebra, trigonometry, and analytic geometry. Students with CEEB achievement scores in mathematics below 530 need this skill course before taking Mathematics 31. Prerequisite: two units of college preparatory mathematics. One course. *Staff*

31, 32. Introductory Calculus. Limits, differentiation, integration, elementary and transcendental functions, sequences, series, Taylor's formula. Prerequisite: three years of college preparatory mathematics. Mathematics 31 is prerequisite to Mathematics 32. Two courses. *Staff*

31P, 32P. Preceptorial. Elective preceptorial for students enrolled in Mathematics 31, 32. *Staff*

31P.1, 32P.1. Calculus and the Computer. Interaction between the ideas of the calculus and the use of a digital computer. No previous computer experience is required. 31P.1 is recommended prior to 32P.1. *Staff*

31X, 32X. Honors Calculus. Similar to Mathematics 31, 32 but more theoretical. Majors in mathematics as well as others who have Achievement Test Scores of 760-800 are encouraged to enroll. Occasionally these courses will be offered as seminars. Two courses. *Staff*

53. Basic Statistics. Statistical concepts involved in making inferences, decisions, and predictions from data. Techniques not emphasized. Not open to students who have had Economics 138 or Psychology 117. One course. *Wilkinson*

101, 102. Linear Algebra and Intermediate Mathematical Analysis. Real and complex vector spaces, linear transformations and matrix representations, similarity of matrices, determinants, quadratic forms, partial differentiation, functions defined implicitly, multiple integrals, infinite series, linear differential equations. Prerequisites: Mathematics 32 for 101, and Mathematics 101 for 102. Two courses. *Staff*

101P, 102P. Preceptorial. Elective preceptorial for students enrolled in Mathematics 101, 102. *Staff*

103. Intermediate Calculus. Solid analytic geometry with vectors, partial differentiation, multiple integrals, elementary differential equations, and complex numbers. Prerequisite: Mathematics 32. One course. *Staff*

103P. Preceptorial. Elective preceptorial for students enrolled in Mathematics 103. *Staff*

104. Linear Algebra and Applications. Euclidean n -space, abstract vector spaces, linear transformations and matrix representation, elementary row operations, determinants, eigenvectors and eigenvalues; applications to the solution of ill-conditioned simultaneous systems and differential equations. Prerequisite: Mathematics 103. One course. *Staff*

104P. Preceptorial. Elective preceptorial for students enrolled in Mathematics 104. *Staff*

103X, 104X. Sophomore Honors Calculus. Similar to Mathematics 103, 104, but more theoretical. Students who take 31X, 32X are encouraged to enroll. Students continuing from 103X should take 104X rather than 104. Two courses. *Staff*

111. Applied Mathematical Analysis I. Ordinary differential equations, including linear differential equations of order n ; partial linear differential equations with constant coefficients; topics in vector calculus; Fourier series. Not open to students who have had Mathematics 131. Prerequisite: Mathematics 103. One course. *Staff*

112. Applied Mathematical Analysis II. Complex variables, residues, conformal mapping, matrices, Laplace and Fourier Transforms and their applications. Prerequisite: Mathematics 103. One course. *Staff*

126. Introduction to Linear Programming and Game Theory. Fundamental properties of linear programs; linear inequalities and convex sets; primal simplex method, duality; integer programming; two person and matrix games. Prerequisites: Mathematics 32 and 104 or consent of the instructor. One course. *Weisfeld*

128. Number Theory. Divisibility properties of integers; prime numbers; congruences; quadratic reciprocity; number-theoretic functions; simple continued fractions; rational approximations. Prerequisite: Mathematics 32 or permission of instructor. One course. *Staff*

129. Introduction to Modern Algebra. Elementary theory of groups, rings, and fields; construction of basic number systems. Prerequisite: Mathematics 104. One course. *Staff*

131. Elementary Differential Equations. Solution of differential equations of elementary types; formation and integration of equations arising in applications. Not open to students who have had Mathematics 111. Prerequisite: Mathematics 103. One course. *Staff*

135, 136. Probability and Statistics. Permutations and combinations, total and compound probability, Bayes' formula, Bernoulli's theorem, discrete distributions, central values, moments and mathematical expectation, law of large numbers, probabilities in continuum, continuous distributions, sampling distributions, confidence limits, tests of hypotheses, and analysis of variance. Prerequisites: Mathematics 103 for 135; 135 and 104 for 136. Two courses. *Burdick*

135P, 136P. Preceptorial. Elective preceptorials for students enrolled in Mathematics 135, 136. *Burdick*

139, 140. Advanced Calculus. Differential and integral calculus of functions of several variables; spaces of continuous functions; Fourier series; existence theorems and uniqueness theorems for differential equations; line and surface integrals; Green's theorem and Stokes' theorem; power series and analytic functions. Prerequisites: Mathematics 104 for 139; and 139 for 140. Two courses. *Staff*

152. List Processing and Data Structures. For a description of this course, see Computer Science 152. One course. *Staff*

161. Numerical Solution of Ordinary Differential Equations. Basic existence and uniqueness considerations; algorithmic procedures for step by

step integration; stability theory and its limitations; accuracy analysis and numerical procedures for determining it; analogue methods and their accuracy and stability characteristics. Prerequisite: Mathematics 104. One course. Murray

171S. Elementary Topology. Basic set theory; metric spaces; topological spaces; continuity; basic topological properties including compactness and connectedness. Prerequisite: Mathematics 104. One course. Staff

181. Complex Analysis. Complex numbers, analytic functions, complex integration, Cauchy's theorem, Taylor and Laurent series, theory of residues, argument and maximum principles, conformal mapping. Prerequisite: Mathematics 104. One course. Staff

183. Introduction to Statistical Methods. Emphasis on the classical techniques of hypothesis testing and point and interval estimation, using the binomial, normal, t, F, and chi-square distributions. Prerequisite: Mathematics 32 or consent of the instructor. One course. Wilkinson

187. Introduction to Mathematical Logic. Propositional calculus, predicate calculus. Gödel completeness theorem, applications to formal number theory, incompleteness theorem, additional topics in proof theory or computability. Prerequisites: Mathematics 104 or Philosophy 103. One course. Henson

191, 192. Independent Study. Directed reading and research. Admission by approval of instructor and Director of Undergraduate Studies. Two courses. Staff

193, 194. Independent Study. Same as 191, 192, but for seniors. Two courses. Staff

197S. Seminar in Mathematics. Primarily intended for juniors and seniors majoring in mathematics. Content of course determined by instructor. Prerequisite: Mathematics 104. One course. Staff

For Seniors and Graduates

204. Geometry for Teachers. Metric and synthetic approaches to plane and solid geometry; affine geometry, and an algebraic model of Euclidean geometry. One course. Staff

206. Introduction to Stochastic Processes. Elementary theory and application of stochastic process models; Poisson processes, counting processes, discrete parameter Markov chains. Prerequisite: Mathematics 135. One course. Wilkinson

207, 208. Introduction to Algebraic Structures. Groups, rings, fields; isomorphism theorems; partial and total orderings; characterizations of basic number systems; permutation groups; finitely generated Abelian groups; polynomial rings; principal ideal domains; division and Euclidean algorithms; vector spaces; linear transformations and matrices; bilinear forms; multilinear algebra; determinants; finite dimensional inner product spaces. Prerequisites: Mathematics 104 for 207; and 207 for 208. Two courses. Warner

217, 218. Intermediate Analysis. Elementary point set topology and differential calculus in n -space; implicit and inverse function theorems; integration theory; differentiable manifolds; differential forms; generalized Stokes' theorem. Prerequisite: Mathematics 104 for 217; and 217 for 218. Two courses. Staff

221, 222, 223. Numerical Analysis. For a description of these courses, see Computer Science 221, 222, 223. Three courses. *Patrick*

227, 228. Theory of Numbers. Congruences, arithmetic functions, compound moduli, quadratic reciprocity, Gauss sums, quadratic forms, sums of squares. Prerequisites: Mathematics 104 for 227; and 227 for 228. Two courses. *Carlitz*

229, 230. Algebraic Numbers. Ideals, unique factorization, divisors of the discriminant, determination of the class number. Prerequisites: Mathematics 207 for 229; and 229 for 230. Two courses. *Carlitz*

234. Sample Designs. Methods of constructing and analyzing survey designs; elements of simple random sampling, stratified sampling, multistage sampling; methods of estimation; questionnaire construction; refusal and not-at-homes. Prerequisite: Mathematics 183. One course. *Staff*

235, 236. Algebra. Elementary categorical algebra; groups with operators, G-sets, structure groups; commutative algebra; principal ring modules; structure of rings and modules; field theory. Prerequisites: Mathematics 208 or equivalent for 235; and 235 for 236. Two courses. *Staff*

244. Analysis of Variance. Multiple regression, univariate and multivariate ANOVA, multiple comparisons (Scheffe, Tukey, etc.), factorial designs, analysis of covariance, repeated measurement designs. Prerequisite: Mathematics 183 or equivalent. One course. *O'Fallon*

245, 246. Combinational Analysis. Generating functions, distributions, partitions, compositions, trees, and networks. Prerequisite: calculus. Two courses. *Carlitz*

247, 248. Arithmetic of Polynomials. Field theory, detailed study of finite fields, special polynomials and functions, valuation theory, the zeta function. Prerequisites: Mathematics 207 or consent of the instructor for 247; and 247 for 248. Two courses. *Carlitz*

256. Foundations of Applied Mathematics. Simulation and related notions; relation of science and technology with evolution of mathematics; modern generalizations of the concepts of language, validity, empirical science, and statistical inference. Areas of application for various specific mathematical topics. Prerequisite: Mathematics 104. One course. *Murray*

260. Design of Experiments. Factorial and fractional factorial designs, confounding, balanced and partially balanced block designs, response surface methodology, method of steepest ascent, comparison of criteria for optimality of design. Prerequisite: Mathematics 136. One course. *Burdick*

262. Non-Parametric Statistics. A study of statistical tests in which no assumption about the underlying distribution is made; single and multiple sample tests for nominal and ordinal scales; non-parametric measures of correlation, efficiency of tests. Prerequisite: Mathematics 136 or consent of the instructor. One course. *Staff*

265, 266. Homological Algebra and its Applications. Categorical algebra; derived categories and homology; sheaves and their cohomology; applications to smooth manifolds and to complex manifolds; preschemes and schemes and their local cohomology. Prerequisites: Mathematics 236 and 271 or consent of instructor. Two courses. *Weisfeld*

269, 270. Recursive Function Theory. Basic Properties, enumeration theorems, hierarchies, recursive functions of higher types, generalized re-

cursion theory; applications. Prerequisite: Mathematics 187 or consent of the instructor. Two courses. *Shoenfield*

271, 272. Introductory Topology. Basic topological properties, including compactness, connectedness, and metrizability; product spaces and function spaces; introduction to algebraic topology. Prerequisites: Mathematics 104 for 271; and 271 for 272. Two courses. *Staff*

273, 274. Algebraic Topology. Homology and cohomology theories; complexes; introduction to homotopy groups. Cech homology theory. Prerequisite: Mathematics 272. Two courses. *Kraines*

275, 276. Probability. Foundations of probability; random variables; distributions; central limit problem; law of large numbers; limit and ergodic theorems. Prerequisite: Mathematics 135; or calculus and consent of the instructor. Two courses. *Staff*

284. Least Squares Analysis of Linear Models. General linear models; geometrical interpretations; multiple regression; one-way and multi-way analysis of variance; fixed, random, and mixed models; experimental design models; analysis of covariance; introduction to non-linear models. Prerequisite: Mathematics 136. One course. *Burdick*

285. Applied Mathematical Methods I. Vectors, line and surface integrals, tensors, complex variables, differential and integral equations. Prerequisite: Mathematics 104. One course. *Dressel*

286. Applied Mathematical Methods II. Wave equation, Fourier series, heat equation, telegraphic equations, Legendre polynomials, Bessel functions, Schrödinger's equation. Prerequisite: Mathematics 104. One course. *Dressel*

287, 288. Foundations of Mathematics. Propositional calculus, predicate calculus, axiomatized number theory. Godel completeness and incompleteness theorems. Recursive functions; hierarchies; constructive ordinals. Set theory; consistency of the axiom of choice. Prerequisite: Mathematics 208 or Philosophy 103, or consent of the instructor. Two courses. *Staff*

290. Stochastic Processes. Foundations and probabilistic structure of stochastic processes; sample function properties, processes with finite second-order moments, stationary processes; representations. Prerequisite: Mathematics 275. One course. *Wilkinson*

291, 292. Analysis I, II. Measure and integration theory; introduction to functional analysis; theory of analytic functions. Prerequisite: Mathematics 218 or 140, or consent of the instructor. Two courses. *Staff*

293. Multivariate Statistics. Basic multinormal distribution theory, the multivariate general linear model including the use of Hotelling's T^2 statistic and the Roy union-intersection principle, principal components, canonical analysis, and factor analysis. Prerequisite: Mathematics 284, or consent of the instructor. One course. *O'Fallon*

295. Mathematical Foundations of Statistical Inference. Inference-theoretic approach to hypothesis testing, decision making, and estimation; Neyman-Pearson fundamental lemma; uniformly most powerful tests; Fisher's information and sufficiency; invariance and unbiasedness. Prerequisite: Mathematics 275, or consent of the instructor. One course. *Staff*

297, 298. Axiomatic Set Theory. Statement and development of Zermelo-Fraenkel axioms. Consistency and independence problems. New axioms and

their consequences. Prerequisite: consent of the instructor. Two courses. *Shoenfield*

DEPARTMENTAL MAJOR

Prerequisites. Mathematics 31, 32.

Major Requirements. Mathematics 103, 104 (or Mathematics 101, 102), and 6 additional courses in mathematics numbered above 100 which must include one of the following year sequences: Mathematics 139, 140; Mathematics 207, 208; or Mathematics 217, 218. Mathematics 183 and 244 may not be counted among the 6 courses, and at most 2 of the following 4 courses may be counted: 152, 221, 222, 223.

It is recommended that all majors take a one year sequence in a natural science other than mathematics. For a student considering graduate study in mathematics, a reading knowledge of two foreign languages (often French, German, or Russian) is most desirable.

Medicine, School of—Basic Science Courses Open to Undergraduates

An undergraduate student in arts and sciences may select courses from the following offered by graduate departments associated with the School of Medicine, provided he has adequate preparation. For courses that are listed but not described below, see the *Bulletin of the Graduate School* for descriptions. If no prerequisites are listed, permission of the instructor is required. A major is not offered to undergraduates in any of the departments listed below.

For permission to work on courses listed below, and for further information, see Assistant Professor Cartmill, consultant for anatomy; Assistant Professor Richardson, consultant for biochemistry; Assistant Professor Vanaman, consultant for microbiology and immunology; and Associate Professor Padilla, consultant for physiology and pharmacology.

ANATOMY

151. Anatomy of the Lower Extremities as it Relates to Locomotion. Dissection of the human adult lower extremity. Demonstration and discussion of gait, biomechanics, and kinesiology. One course. *Bassett*

231. Human Evolution. Prerequisite: Anthropology 93 or equivalent. (Listed also as Anthropology 231.) One course. *Cartmill*

240. Mechanisms of Biological Motility. Prerequisite: written permission of the instructor. Enrollment minimum 4; maximum 10. Offered spring, 1975, and alternate years thereafter. One course. *Adelman*

264. Mammalian Embryology and Developmental Anatomy. Prerequisites: one year of zoology and consent of instructor. One course. *Duke*

280. Molecular Basis of Anatomy. Prerequisites: microscopic anatomy or cytology (or equivalent) and permission of instructor. One course. *Longley, Adelman, Erickson, Moses, Reedy, and Robertson*

The following courses in anatomy are also available and are described in the *Bulletin of the Graduate School*: full courses—207, 219, 238, 271, 286; half-courses—208, 219S, 261, 263, 266, 288, 290, 291.

BIOCHEMISTRY

209-210. Independent Study. A tutorial, based upon a laboratory or library project in biochemistry. One or two courses by arrangement. *Staff*

216. Molecular Genetics. Prerequisites: introductory courses in biochemistry and genetics. One course. *Guild and Staff*

247. Introductory Biochemistry. Prerequisites: Chemistry 151, one year of college physics (second semester may be concurrent), Mathematics 32, or consent of the instructors. (Listed also as Zoology 248.) One course. *Sage and Webster*

276. Comparative and Evolutionary Biochemistry. Two courses. (Given at Beaufort.) *Sullivan*

293. Macromolecules. Prerequisite: physical chemistry equivalent to Chemistry 161-162. One course. *Hill, Kim, Richardson, and Tanford*

295. Enzyme Mechanisms. One course. *Fridovich and Rajagopalan*

297. Intermediary Metabolism. One course. *Kirshner and Siegel*

298. Regulation of Cellular Metabolism. Prerequisites: Biochemistry 295, 297. Half-course. *Greene and Staff*

The following courses in biochemistry are also available and are described in the *Bulletin of the Graduate School*: full courses—204, 219, 294; half-courses—208, 222, 282, 284, 286, 288, 290, 296, 299.

MICROBIOLOGY AND IMMUNOLOGY

209-210. Independent Study. A laboratory or library project. One or two courses by arrangement. *Staff*

215. Bacteriophage: Structure and Function. Half-course. *Nichols*

221. Medical Microbiology. Prerequisite: consent of instructor. One course. *Joklik and Staff*

221L. Medical Microbiology. Prerequisite: consent of the instructor. One and one-half courses. *Joklik and Staff*

233. Microbiology. Relationship to biochemistry, genetics, and medicine. Primarily for juniors and seniors. Prerequisite: one course in a biological science and one course in organic chemistry (may be concurrent). (Listed also as Botany 233.) One course. *Willett, Burns, Joklik, and Amos*

252. General Animal Virology and Viral Oncology. Prerequisite: consent of instructor. One course. *Joklik, Nichols, Smith, and Zweerink*

282. Molecular Microbiology. Prerequisite: Microbiology 233 or consent of instructor. One course. *Burns, Nichols, Vanaman, Wheat, and Willett*

291-292. Immunology I and II. Two courses. *Scott and Staff*

PHYSIOLOGY AND IMMUNOLOGY

200. Physiology of Man. Two courses. *Staff*

202. Introduction to Physiology. One course. *Jöbsis*

203. Advanced Physiology. One course. *Somjen*

208. Respiratory System in Health and Disease. Half-course. *Kylstra, Saltzman, and Salzano*

212. **Marine Membrane Physiology.** (Given at Beaufort.) Two courses. Gutknecht, Schoffeniels, Wachtel, and Staff

213. **Cellular and Chemical Pharmacology.** One course. Ottolenghi and Staff

215. **Topics in Developmental Physiology and Pharmacology.** Half-course. Lieberman, Mendell, and Padilla

216. **Contractile Processes in Physiology and Pharmacology.** One course. Anderson, Jöbsis, and Johnson

217. **Membrane Transport Processes in Physiology and Pharmacology.** Half-course. Gunn, Gutknecht, Kirk, Lauf, McManus, and Tosteson

230. **Molecular and Cellular Basis of Development.** One course. Padilla, Counce, McCarty, and Staff

230S. **Seminar.** Optional Seminar offered in conjunction with Physiology 230. Half-course. Padilla, Counce, McCarty, and Staff

The following courses in physiology and pharmacology are also available and are described in the *Bulletin of the Graduate School*: full courses—201, 210, 211; half-courses—279, 280; two courses—200.

Medieval and Renaissance Studies Program

Professor Covi, *Chairman of the Committee on Medieval and Renaissance Studies*

The Program in Medieval and Renaissance Studies, an interdisciplinary major, is designed to provide the student with a well-rounded understanding of the historical, cultural, and social forces that shaped the Medieval and Renaissance periods. The program is divided into four areas of study: fine arts (Art and Music); history; language and literature (French, German, Greek, Italian, Latin, and Spanish); and philosophy-religion.

A major in this program consists of at least 8 courses drawn from the non-introductory courses among the four areas of study, including 3 courses in each of two areas. Besides the courses specifically listed (under departmental headings) in the Medieval and Renaissance periods, provision may be made for independent study in any of the four areas. Each student's program is tailored to his interests and needs under the supervision of a committee consisting of faculty members from appropriate departments.

After discussion with the Chairman of the Committee for Medieval and Renaissance Studies, the student submits a provisional program of study outlining special interdisciplinary interests. Normally the student should plan his program well before the end of the sophomore year since he needs to acquire a working knowledge of languages pertinent to his interests.

The courses listed below are among those now available for the fulfillment of the major prerequisites and requirements. For a description of the courses consult listings under the specified department.

DEPARTMENT OF ART

133. Medieval Architecture. Sunderland

134. Medieval Painting and Sculpture. Sunderland

135, 136. Art of Northern Europe in the Fifteenth and Sixteenth Centuries. Mueller

- 137, 138. Italian Renaissance Art. Jenkins
- 144. Renaissance and Baroque Architecture. Sunderland
- 233. Early Medieval Architecture. Sunderland
- 234. Romanesque Sculpture. Sunderland
- 237. French Renaissance Art. Jenkins
- 238. Sieneese Painting. Jenkins
- 248. Florentine Painting During the Renaissance. Covi
- 253S. Studies in Italian Renaissance Sculpture. Covi
- 255S, 256S. Iconological Problems. Langedijk

DEPARTMENT OF CLASSICAL STUDIES

Latin

- 87, 88. Sight Reading in Classical, Medieval, and Renaissance Latin.
- Staff
- 221. Medieval Latin I. Newton
- 222. Medieval Latin II. Newton
- 225. Palaeography. Newton

Classical Studies

- 117. Ancient Mythographers. Newton

DEPARTMENT OF ENGLISH

- 112. English Literature of the Middle Ages. Reiss
- 115. Chaucer. Adams, Nygard, and Reiss
- 121. English Literature of the Sixteenth Century. DeNeef
- 123, 124. Shakespeare. DeNeef and Williams
- 125. English Literature of the Early Seventeenth Century. DeNeef
- 127. Milton. Lievsay and Price
- 207, 208. History of the English Language. Nygard and Reiss
- 210. Old English Literary Tradition. Nygard and Reiss
- 212. Middle English Literary Tradition. Nygard and Reiss
- 215. Chaucer. Nygard and Reiss
- 216. Chaucer. Nygard and Reiss
- 221. English Prose of the Sixteenth Century. Lievsay
- 222. English Nondramatic Poetry of the Sixteenth Century. DeNeef and Lievsay
- 223. Spenser. DeNeef and Lievsay
- 224. Shakespeare. Williams
- 225, 226. Tudor and Stuart Drama, 1500-1642. Randall
- 229. English Literature in the Seventeenth Century. Lievsay, Randall, and Williams
- 232. Milton. Lievsay

DEPARTMENT OF GERMANIC LANGUAGES AND LITERATURE

- 205, 206. Middle High German. Stern
- 215S. Seventeenth Century Literature. Borchardt
- 216. History of the German Language. Stern
- 217S. Renaissance and Reformation Literature. Borchardt

DEPARTMENT OF HISTORY

- 103, 104. Renaissance and Reformation. Witt

107. Social and Cultural History of England. *Ferguson*
 133, 134. Medieval History. *Young*
 195A-196A. Renaissance Intellectual History. *Witt*
 195N-196N. The English Renaissance. *Ferguson*
 221-222. Problems in the History of Late Medieval Europe and Early
 Modern Europe. *Witt*
 237S, 238S. Europe in the Middle Ages, 395-1500. *Young*
 267S-268S. From Medieval to Early Modern England. *Ferguson*

DEPARTMENT OF MUSIC

- 159S. Music History IV: History of Music to 1600. *Kirkendale*
 166S. The Renaissance Madrigal. *Saville*

DEPARTMENT OF PHILOSOPHY

119. Introduction to Medieval Philosophy. *Mahoney*
 120. Late Medieval and Renaissance Philosophy. *Mahoney*
 218. Medieval Philosophy. *Mahoney*

DEPARTMENT OF RELIGION

121. Christianity in Europe from the Middle Ages to the Protestant Ref-
 ormation. *Staff*

DEPARTMENT OF ROMANCE LANGUAGES

French

- 106S. Montaigne. *Tetel*
 114. The Sixteenth Century. *Vincent and Tetel*
 117S. Masterpieces of French Medieval Literature. *Ripley*
 119. French Drama of the Seventeenth Century. *Auld*
 213. French Literature of the Seventeenth Century. *Auld*
 219. Old French Literature. *Vincent*
 225. French Prose of the Sixteenth Century. *Tetel*
 226. French Poetry of the Sixteenth Century. *Tetel*

Italian

- 141, 142. Masterworks of Italian Literature in English Translation.
Caserta
 183. Readings in Italian Literature. *Caserta*
 284. Dante. *Fowlie*
 288. The Renaissance. *Tetel*

Spanish

- 117S. Masterpieces of Spanish Medieval Literature. *Garci-Gomez*
 161. Spanish Literature of the Renaissance and the Baroque. *Miller*
and Wardropper
 167. Golden Age Literature: Cervantes. *Predmore*
 170. The Picaresque Novel. *Garci-Gomez*
 251. The Origins of the Spanish Novel. *Wardropper*
 252. Spanish Lyric Poetry before 1700. *Wardropper*
 253. The Origins of the Spanish Theatre. *Wardropper*
 258. Old Spanish Literature. *Davis*
 265. Golden Age Literature: Cervantes. *Predmore and Wardropper*
 266. Golden Age Literature: The Drama. *Wardropper*

Music

Professor Allan H. Bone, *Chairman*; Professor J. Hanks, *Director of Undergraduate Studies*; Associate Professor P. Bryan, *Supervisor of Freshman Instruction*; Professors Hamilton, Mueller, and Withers; Associate Professors Kirkendale and Saville; Resident Artist Ciompi; Assistant Professors Friedberg, Henry, and Tirro; Visiting Assistant Professor Maves; Lecturers Fishbaugh and Smith; Part-time Instructor Witherspoon; Staff Associates Barison, Erdberg, Evans, B. Fecteau, R. Fecteau, Gulick, Holton, Kort, Phelps, Redding, Robinson, Painter; Artist Associates Amick, Gilmore, Myers, Neilson, Pederson; Librarian Hammond

THEORY AND COMPOSITION

7-8. Dictation and Sight-Singing. Techniques of aural analysis and development of sight-reading skills. Music majors should take this course concurrently with Music 65-66. Skill course. Half-course each semester. Witherspoon

65. Fundamentals of Music Theory. Physical properties of sound; principles of diatonic tonal organization; melodic and harmonic constructions; elementary counterpoint and figured base. Skill course. Prerequisite: basic knowledge of musical notation and vocabulary. Music majors should take Music 7 concurrently. One course. *Maves and Gulick*

66. Tonal Harmony. Harmonic language of eighteenth and nineteenth century classicism; functional chromaticism, sectional forms. Music majors should take Music 8 concurrently. Prerequisites: Music 65 and 7. One course. *Gulick and Maves*

67S, 68S. Composition I. Composing original music in the smaller forms for voice, piano, and other instruments. Studies in contemporary compositional techniques. Prerequisite: Music 65, 66 or consent of instructor. Two courses. *Hamilton and Maves*

107-108. Keyboard Theory. Harmonic principles of tonal music applied to the keyboard; score reading, figured bass, melodic harmonization, modulation, transposition. Music majors should take this concurrently with Music 115-116. Skill course. Prerequisites: Music 65-66, 7-8, and keyboard proficiency. Half-course each semester. *Witherspoon*

115S. Modal Counterpoint. Polyphonic, contrapuntal, and melodic practices found in the sacred and secular works of the sixteenth and seventeenth centuries. Music majors should take Music 107 concurrently. Prerequisite: Music 65-66. One course. *Maves*

116S. Linear Tonal Practice. Organic tonal elements (including canon, invention, chorale prelude, fugue) as found in the works of Bach, Mozart, Haydn, Beethoven, and Brahms. Prerequisite: Music 76, 77. One course. *Maves*

117S, 118S. Music Theory III: Composition and Analysis. The development of technical and expressive means in various media and styles. The completion of an original work in an instrumental or choral medium. Prerequisites: Music 116, 139, 158, or consent of instructor. Two courses. *Hamilton*

119, 120. Experimental Music. The development of skills necessary to compose music, utilizing either computer synthesized sound or the components available in the electronic music studio. Composition for conven-

tional and nonconventional instruments. Prerequisite: Music 67S, 68S. Two courses. *Maves*

122. Orchestration. Characteristics and transpositions of the instruments of the symphony orchestra and concert band. Instrumentation from pre-existing piano scores, or the student's original compositions, for string, woodwind, brass and percussion ensembles, orchestra or band. Prerequisite: Music 116. One course. *Bryan*

HISTORY AND LITERATURE

51, 52. Introduction to Music Literature. The literature of music of Western civilization; acquisition of critical insights into musical styles, forms, and techniques. Representative works of major composers in all media, instrumental and vocal. Two courses. *Staff*

125. Masterworks of Music Literature. An intensive study of selected masterworks which represent the principal currents in modern music history. Compositions by Bach, Mozart, Beethoven, Brahms, Debussy, and Bartok will constitute a frame of reference for historical, biographical, and stylistic analysis. One course. *Bone, Friedberg, and Mueller*

139. Twentieth Century Music. Influential creative stylistic developments in music of the present century. A critical survey of works by Bartok, Berg, Schönberg, Stravinsky, and Webern as a means of establishing a relative standard of values for subsequent independent exploration. Prerequisite: a one-year course in music theory or literature, or consent of the instructor. One course. *Bullock*

156S. Music History I: History of Music from 1600 to 1750. Prerequisites: Music 7-8, 65, or consent of instructor. One course. *Saville*

157S. Music History II: History of Music from 1750 to 1830. Prerequisites: Music 7-8, 65, or consent of instructor. One course. *Bryan*

158S. Music History III: History of Music from 1830-1910. Prerequisites: Music 7-8, 65, or consent of instructor. One course. *Hamilton and Friedberg*

159S. Music History IV: History of Music to 1600. Prerequisite: Music 7-8, 65, and two courses in music history, or consent of the instructor. One course. *Kirkendale*

163. Music in the Eighteenth Century. Baroque, rococo, and classical styles and concepts represented in different instrumental and vocal genres; the composers and their historical and artistic environment. Prerequisite: one course in music theory or literature, or consent of the instructor. One course. *Bryan*

164. Music in the Nineteenth Century. Romantic and post-romantic music; its relation to the artistic literary movements of the century. Prerequisite: one course in music theory or literature, or consent of the instructor. One course. *Mueller*

165. Opera Literature. From the Florentine Camerata to the present. The operatic idea, with attention to changing relationships of music and text; opera as social commentary; formal and stylistic means. Selected composers from Monteverdi to Berg. One course. *Saville*

166S. The Renaissance Madrigal. History of Italian and English madrigal forms from the fourteenth century *Ars Nova* through the Renaissance into the early Baroque of the 1620's. Ability to read music and some experience with Italian helpful but not required. One course. *Saville*

174. Introduction to Jazz. A multidisciplinary survey for non-majors which examines musical, aesthetic, sociological, and historical aspects of jazz. One course. Tirro

INDEPENDENT STUDY AND SEMINARS

Admission to these courses will be subject to the approval of the Director of Undergraduate Studies in the Department of Music and the individual instructor. The instructor as well as the course content will be established in accordance with the individual student's interests and capacities.

The department offers work leading to Graduation with Distinction. See the section on Academic Honors.

179, 180. Independent Study in Musical Performance.* Open only to sophomores possessing an exceptional technical and interpretive command of a musical medium. Prerequisites: previous registration in private instruction in applied music at Duke, audition, and permission of instructor. Two courses. Staff

181, 182. Independent Study in Musical Performance.* Same as 179, 180, but for juniors. Two courses. Staff

183, 184. Independent Study in Musical Performance.* Same as 179, 180, but for seniors. Two courses. Staff

185S, 186S. Seminar in Music. Guidance in the sources and materials of music and in the methods of stylistic analysis and criticism. A background of historical, stylistic, and theoretical knowledge is essential. Formal papers required. Two courses. Staff

191, 192. Independent Study. Directed reading, research, and musical analysis within a prescribed area of musical literature. Open only to highly qualified students in the junior year, by permission of the department. One or two courses. Staff

193, 194. Independent Study. Same as 191, 192, but for seniors. One or two courses. Staff

195S, 196S. Seminar in Music. Same as 185S, 186S but for seniors, not necessarily restricted to candidates for degree with distinction. Two courses. Staff

MUSIC EDUCATION AND PEDAGOGY

57S, 58S, 59S, 60S. Vocal Diction. Problems of diction for the singer. Study of standard pronunciation with special emphasis on phonetics in English, Italian, German, and French. Four half-courses. Hanks

121. Conducting. The conducting of orchestral and vocal scores. Score-reading and analysis, principles of interpretation, establishment of vocal and instrumental conductor techniques leading to practical experience in conducting the department musical organizations in rehearsal. Prerequisite: Music 76, 77, 116, or consent of instructor. One course. Bone

151. Public School Music Education (Elementary). Basic musical skills; music theory and reading; song literature; rhythmic activities; listening; instruction on tonettes, recorders, autoharp, bells, selected percussion instruments, and piano chording. Half-course. Witherspoon

*The schedule of fees for private lessons as published on page 163 is applicable to courses 179, 180, 181, 182, 183, 184.

152. Public School Music Education II (Elementary). Continuation of Music 151 with emphasis on music appreciation as it pertains to social studies in public schools. Study and analysis of key words in music literature. Prerequisite: Music 151 or consent of the instructor. Half-course. *Witherspoon*

153. Vocal Music in the Public School (Secondary). Repertoire and methods for teaching vocal music in the junior and senior high schools. Aims, organization, administration, training, and performance of school choirs and ensembles; care of the changing voice. One course. *Saville*

154. Instrumental Music in the Public School (Secondary). Materials and methods of teaching instrumental music in the junior and senior high schools; emphasis on teaching techniques, repertoire, organization, and administration of the instrumental curriculum. One course. *Bone*

APPLIED MUSIC

The study of applied music concerns the understanding of music literature through performance. Private instruction is offered in instruments and voice. Class instruction is offered in small and large ensemble experience. Students must arrange an audition with the instructor prior to registration, either in person or by tape recording. All courses may be repeated for credit. Not more than two quarter-credit courses in the ensemble group (courses 100 and above) may be taken concurrently.

Private instruction: ½ hour, ¼ course credit

- 80. Piano. *Withers, Phelps, Bullock, and Erickson*
- 81. Strings. *Ciampi and Mueller*
- 82. Woodwinds. *Henry*
- 83. Brass. *Bryan*
- 84. Percussion. *Moves*
- 85. Voice. *Hanks and Redding*
- 86. Organ. *Gulick and Hurd*

Private instruction: 1 hour, ½ course credit

- 90. Piano. *Withers, Phelps, Bullock, and Erickson*
- 91. Strings. *Ciampi and Mueller*
- 92. Woodwinds. *Henry*
- 93. Brass. *Bryan*
- 94. Percussion. *Moves*
- 95. Voice. *Hanks and Redding*
- 96. Organ. *Gulick and Hurd*

Ensemble classes: ¼ course credit

- 100. Symphony Orchestra. *Bone*
- 101. Wind Symphony. *Bryan*
- 102. Marching Band. *Henry*
- 103. Jazz Ensemble. *Holton*
- 104. String Ensemble. *Stoff*
- 105. Wind Ensemble. *Stoff*
- 106. Piano Ensemble. *Stoff*
- 109. Chancel Singers. *Saville*
- 110. Collegium Musicum. *Tirro*
- 111. Opera Workshop. *Honks*
- 112. Chapel Choir. *Smith*
- 113. Chorale. *Smith*

Credit in Applied Music. (Skill courses—credit not applicable to distribu-

tional requirements.*) Credit for instruction in courses below 100 is granted on the basis of a half-course per semester for one hour of private instruction per week and a minimum of six hours practice weekly; or a half-course per year for one-half hour of private instruction, or one period of class study, and a minimum of six hours practice per week. An additional weekly class meeting for performance and criticism may be required by the instructor without additional credit. Credit for instruction in courses above 100 is granted on the basis of a half-course per year for one rehearsal period of instruction and a minimum of three hours practice per week.

Fees. Students who have been accepted as music majors at the time of registration for applied music courses are exempt from paying the applied music fees. Other students are charged for all applied music media below 100.

Fees are payable to the Bursar's Office at Duke University upon notification from that office at the beginning of each semester as follows:

One ½ hour private lesson per week for one semester	\$ 60.00
Two ½ hour private lessons per week or one 1-hour private lesson per week for one semester	100.00
One 1-hour class lesson per week for one semester	25.00

All students registered for applied music instruction are charged for practice room facilities—students having practice facilities off campus must notify the departmental office of this fact by the end of the third week of each semester; otherwise they will be automatically billed as follows:

- Room with piano or organ: \$20.00 per semester
- Room without piano: \$15.00 per semester

DEPARTMENTAL MAJOR

Prerequisites. Music 7-8, 107-108, 119-120, 122, 163, 65, 66, and one year of applied music study in instrument or voice. Any or all of these may be exempted through demonstration of proficiency by examination and/or audition.

Major Requirements. Music 115, 116, 156, 157, 158, 159, and one additional elective course in the department.

Naval Science

For courses in Naval Science, see Reserve Officers Training Program.

Philosophy

Professor Welsh, *Chairman*; Assistant Professor Aquila, *Director of Undergraduate Studies*; Professors Dray, Negley, and Peach; Associate Professors Mahoney, Roberts, and Sanford; Assistant Professors Benditt and Ross

The undergraduate program in the Department of Philosophy is designed to acquaint students with the content and the structure of philosophical theory in various areas. Discussion is encouraged so that the student can engage actively in the philosophical examination of problems.

*Subject to instructors approval, a student at an advanced level in applied music may take courses for tutorial and distributional requirements. These courses shall be designated by adding a T to the appropriate course number. Beginning students and others who have not reached an advanced level will continue to take the regular applied music courses.

Course offerings fall into two general categories: the systematic and the historical. In a systematic treatment, the organization of a course is primarily in terms of the problems presented by the subject matter of that course, as in logic, ethics, and metaphysics. In historical courses, attention is directed more to the order of development in the thought of a particular philosopher (Plato, Aristotle, Kant), or in a historical period. In all courses, reading of the works of philosophers will acquaint the students with the important and influential contributions to the definition and solution of philosophical issues.

The problems raised in philosophy in respect to the various fields of the arts and sciences involve questions which are not normally given attention in those particular disciplines. In the consideration of such problems, therefore, it is expected that the student will acquire some understanding and perspective of the major areas of man's intellectual endeavor. In this sense, philosophical comprehension is an essential part of a student's learning and education.

Only one of 41, 42, 43S, or 44S may be taken for credit. Not open to juniors and seniors.

41. Introduction to Philosophy. Examination of problems in philosophy; emphasis on metaphysics and theory of knowledge. One course. *Staff*

42. Introduction to Philosophy. Examination of problems in philosophy; emphasis on ethics and value theory. One course. *Staff*

43S. Introduction to Philosophy. Philosophy 41 conducted as a seminar. One course. *Staff*

44S. Introduction to Philosophy. Philosophy 42 conducted as a seminar. One course. *Staff*

48. Logic. A study of the conditions of effective thinking and clear communication. Examination of the basic principles of deductive reasoning. One course. *Ross and Sanford*

93. History of Ancient Philosophy. The Pre-Socratics, Socrates, Plato, Aristotle, and post-Aristotelian systems. Freshman prerequisites: previous philosophy course and permission of instructor. One course. *Mahoney*

94. History of Modern Philosophy. Bacon, Hobbes, Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. Freshman prerequisites: previous philosophy course and permission of instructor. One course. *Aquila, Peach, and Roberts*

101. Philosophy of Religion. Selected concepts and doctrines. One course. *Roberts*

102. Aesthetics: The Philosophy of Art. The concept of beauty, the work of art, the function of art, art and society, the analysis of a work of art, criticism in the arts. One course. *Welsh*

103. Symbolic Logic. Detailed analysis of deduction and of deductive systems. Open to sophomores by permission of instructor. One course. *Ross*

104. Philosophy of Science. The principal philosophical and methodological problems in contemporary science. One course. *Ross*

105. Philosophy of History. History as a form of enquiry; problems of explanation; objectivity and the historical individual; general interpretations of the historical process. One course. *Dray*

106. Philosophy of Law. Natural law theory; legal positivism; legal realism; the relation of law and morality. One course. *Benditt*

107. Political and Social Philosophy. Discussion of the fundamental principles of political and social organizations, with particular attention to democratic philosophy, corporate theory, and Marxist-Soviet philosophy. One course. *Negley*

108. Social Ideals and Utopias. Reading of selected Utopias; analysis of the value-structures and political principles of these ideal societies. One course. *Negley*

109. Philosophy of Language. A philosophical analysis of problems arising in the study of language and symbolism. Topics include: theories of language, the nature of signs and symbols, theories of meaning, types of discourse (scientific, mathematical, poetic), definition, ambiguity, metaphor. One course. *Welsh*

110. Epistemology. A treatment of the problems of truth and knowledge; of *a priori* and empirical statements; and of theories of perception and probability. One course. *Sanford*

111. Metaphysics. A selection from the following: theories of substance, universals, identity, space, time, and causality; determinism and action; the relation of mind and body. Prerequisite: one course in philosophy. One course. *Sanford*

112. Philosophy of Mind. Such topics as mind and body, thought, perception, persons, and personal identity. One course. *Aquila*

116. Systematic Ethics. Problems in moral philosophy: the nature of morality, ethical relativism, egoism, utilitarianism. Both historical and contemporary readings, with emphasis on the latter. One course. *Benditt*

117. Ancient and Modern Ethical Theories. The development of ethical thought in the West; the interaction between culture and ethical theory, with special reference to the Greek city-state, Roman law, the Renaissance, the Reformation, and the rise of modern science. Readings in the great ethical philosophers. One course. *Welsh*

119. Medieval Philosophy. Readings and discussion of Christian, Islamic, and Jewish Philosophy from late antiquity to 1300. Special emphasis on the nature and destiny of man, human knowledge and conduct, and the question of the existence and nature of God. One course. *Mahoney*

120. Late Medieval and Renaissance Philosophy. Critical trends in fourteenth century philosophy; Renaissance Platonism, humanism and theories of love; Aristotelianism and the immortality controversy; the rebirth of scepticism; and the rise of modern philosophy. One course. *Mahoney*

132. Nineteenth Century Philosophy. Major nineteenth century philosophers; emphasis on the German tradition: Hegel, Schopenhauer, and Nietzsche. One course. *Aquila*

134. Existentialism. One or more major texts, such as Sartre's *Being and Nothingness*. One course. *Aquila*

191, 192, 193, 194. Independent Study. Directed reading and research. Open only to highly qualified students in the junior and senior years, by permission of the department. *Staff*

196S, 197S, 198S, 199S. Seminars in Philosophy. Prerequisite: one course in philosophy or consent of instructor. One course each. *Staff*

For Seniors and Graduates

202. Aesthetics: The Philosophy of Art. A study of some fundamental issues in aesthetics with particular reference to the fields of literature, music and painting. Problems discussed include the role of standards in criticism, aesthetic judgment, interpretation, and evaluation in the arts, meaning in the arts, art and truth, the arts and morality. Open to juniors with the approval of the instructor. One course. *Welsh*

203. Contemporary Ethical Theories. Study of the nature and justification of basic ethical concepts in the light of the chief ethical theories of twentieth century British and American philosophers. One course. *Benditt*

204. Philosophy of Law. Natural law theory and positivism; the idea of obligation (legal, political, social, moral); and the relation of law and morality. One course. *Benditt*

205. Philosophy of History. The nature of historical knowledge and inquiry; theories of the historical process. One course. *Dray*

206. Topics in Ethical Theory. One course. *Benditt*

208. Political Values. Analysis of the systematic justification of political principles and the political values in the administration of law. One course. *Negley*

211. Plato. A critical study of selected dialogues, with emphasis on problems in epistemology and metaphysics. One course. *Mahoney*

217. Aristotle. A study of passages from the *Organon*, *Physics*, *De Anima*, and *Metaphysics*. One course. *Mahoney*

218. Medieval Philosophy. Selected problems in medieval philosophy. One course. *Mahoney*

225. British Empiricism. A critical study of the writings of Locke, Berkeley or Hume with special emphasis on problems in the theory of knowledge. One course. *Peach*

227. Continental Rationalism. A critical study of the writings of Descartes, Spinoza, or Leibniz with special emphasis on problems in the theory of knowledge and metaphysics. One course. *Peach*

228. Recent and Contemporary Philosophy. A critical study of some contemporary movements in philosophy with special emphasis on the work of Moore, Russell, Wittgenstein, Wisdom, and Ryle. One course. *Welsh*

231. Kant's Critique of Pure Reason. One course. *Aquila*

232. Recent Continental Philosophy. Selected topics. One course. *Aquila*

233. Methodology of the Empirical Sciences. Recent philosophical discussion of the concept of a scientific explanation, the nature of laws, theory and observation, probability and induction, and other topics. Consent of the instructor required. One course. *Ross*

234. Problems in the Philosophy of Science. Selected problems in the physical and nonphysical sciences such as space and time, measurement and determinism. Consent of the instructor required. One course. *Ross*

241. Symbolic Logic. Detailed analysis of deduction and of deductive systems. One course.

251. Epistemology. Selected topics in the theory of knowledge, e.g., conditions of knowledge, scepticism, and certainty, perception, memory, knowl-

edge of other minds, and knowledge of necessary truths. One course. Sanford

252. Metaphysics. Selected topics: substance, qualities and universals, identity, space, time, causation, and determinism. One course. Sanford

253. Philosophy of Mind. Analysis of concepts such as thought and belief; issues such as mind-body relations, thought and action, the nature of persons and personal identity. One course. Aquila

254. Philosophy of Religion. Topics such as proofs of the existence of God, meaningfulness of religious language, the problem of evil, immortality and resurrection. One course. Roberts

255. Philosophy of Action. Problems in the individuation, characterization, and explanation of human actions; an analysis of such concepts as choosing, deciding, intending, doing, making, letting. One course. Dray

260. Wittgenstein. An examination of the *Tractatus* or the *Investigations*. One course. Welsh

291, 292. Seminars in Special Topics. One course each. Staff

DEPARTMENTAL MAJOR

Major Requirements. Eight semester courses in philosophy of which at least 6 must be in courses numbered above 48. The following must be included: Philosophy 93 and 94; one non-introductory course in theory of value. Philosophy 48 (Logic) is recommended, though not required, for those intending to major in philosophy.

Related Work. Two courses minimum in each of two departments approved by the philosophy adviser. Courses may not be those primarily open to freshmen. There is no restriction in principle as to departments in which related work may be taken, and the approval of the philosophy adviser is required only to ensure some coherence in the program of major and related work as a whole.

The department offers work leading to graduation with distinction. See the section on Honors.

Physics

Professor Newson, *Chairman*; Associate Professor Roberson, *Director of Undergraduate Studies*; Professor Bilpuch, *Supervisor of Freshman Instruction*; Professors Biedenharn, Fairbank, Gordy, Greuling, Lewis, Meyer, Robinson, Robl, and Walker; Associate Professors Cusson, Evans, Fortney, Han, and Walter; Assistant Professors De Lucia, Goshaw, Loos, Riedel, and Sykes; Instructors Clement, Divadeenam, and Moses

Physics courses aim to develop in students a knowledge of the fundamental concepts of physics and the analytical skills necessary for scientific work. The undergraduate program provides students with appropriate academic background for positions in industry, government laboratories, or for graduate study. A program is also available which prepares the student for the study of medicine while giving him a strong background in physics.

32. History of Modern Physics. From 1900 to the present. Theories including atomic structure, quantum theory, relativity, nuclear and particle physics; their developers and technological applications. No previous knowledge of physics assumed. One course. Walker

41, 42. Fundamentals of Physics. For students interested in majoring in

physics; taken in the freshman year. Basic principles of physics, mainly classical, at a level similar to Physics 51-52, but with emphasis on laying a foundation for further study. Three lecture-recitations and one three-hour laboratory. Prerequisites: approval of the department and Mathematics 31-32 or equivalent (may be taken concurrently). Two courses. *Lewis*

41P, 42P. Preceptorials. Elective preceptorials for students enrolled in Physics 41, 42.

51, 52. General Physics. Basic principles of general physics treated quantitatively. Designed for students entering medicine, engineering, and the sciences. Not open for credit to students who have completed Physics 41, 42. Students planning to major in physics should enroll in Physics 41, 42 in their freshman year. Prerequisites: Mathematics 31, 32 or equivalent (may be taken concurrently with permission of instructor). Two courses. *Clement, Divadeenam, Fairbank, Fortney, Goshaw, Greuling, Loos, and Walter*

51P, 52P. Preceptorials. Elective preceptorials for students enrolled in Physics 51, 52.

55. Introduction to Astronomy. Man's evolving theory of the physical universe. Cosmological models, galaxies, stars, interstellar matter, the solar system, and experimental techniques and results. Optional observational laboratory. One course. *De Lucia*

102. Applications of Modern Physics in Medicine. Recent applications of physical phenomena in medical investigations including lasers, ultrasonics, X-rays, radioactivity, radiation therapy, cryogenics, and electronic techniques. Prerequisites: Physics 41-42 or 51-52. One course. *Walter*

106. Topics in Astrophysics. Current topics with emphasis on contributions of the basic sciences. Experimental and observational opportunities. Prerequisite: Physics 55 or permission of instructor. One course. *De Lucia*

161. Modern Physics. Relativity, quantum phenomena, atomic and molecular structure and spectra, solids, statistical physics, nuclear physics, elementary particles. Prerequisites: Physics 41-42 or 51-52 and Mathematics 32. One course. *Han*

171. Electronics. Elements of electronics including circuits, transfer functions, solid state devices, transistor circuits, operational amplifier applications, digital circuits and computer interfaces. Three lectures and one three hour laboratory. Prerequisites: Physics 41-42 or 51-52. One course. *Fortney*

176. Thermodynamics and Kinetic Theory. Thermodynamics kinetic theory, and elementary statistical mechanics. Prerequisites: Physics 41-42 or 51-52, and differential and integral calculus. One course. *Meyer*

181. Introductory Mechanics. Newtonian mechanics at the intermediate level, Lagrangian mechanics, linear oscillations, special relativity. Prerequisites: Physics 41-42 or 51-52 and differential and integral calculus. One course. *Han*

185. Optics and Spectroscopy. Wave motion; Fourier methods; geometrical and physical optics; coherence; lasers; atomic and molecular spectra. Prerequisites: Physics 41-42 or 51-52, and differential and integral calculus. One course.

A course in general college physics and a course in differential and integral calculus are prerequisites to all courses numbered 200 and above.

211, 212. Advanced Modern Physics. Quantum theory with applications to the study of atoms, molecules, solids, and nuclei. Prerequisites: Physics 161, 181 or equivalents. Mathematics 285-286 or equivalent (may be taken concurrently). Two courses. Robinson

217S, 218S. Advanced Physics Laboratory and Seminar. Experiments involving the fields of mechanics, electricity, magnetism, heat, optics, and modern physics. Two courses. Meyer

223. Electricity and Magnetism. Electrostatic fields and potentials, boundary value problems, magnetic induction, energy in electromagnetic fields, Maxwell's equations, introduction to electromagnetic radiation. One course. Loos

225, 226. Elementary Investigations. The aim of this course is to provide training in the laboratory and library methods of physical research. Properly qualified students may conduct elementary investigations under the supervision of a member of the staff. One course each semester. Staff

282. Mechanics of Continuous Media. Small vibrations, rigid body motion, hydrodynamics, elasticity. Prerequisites: Physics 41-42 or 51-52 and differential and integral calculus. One course. Walker

DEPARTMENTAL MAJOR

A student planning to major in physics should enroll in Physics 41-42 in his freshman year. He should also arrange to complete the necessary mathematics as soon as possible.

The A.B. degree

Prerequisites. Physics 41-42 or 51-52 or equivalent; Mathematics 31-32 or equivalent, 103, 104, or 131; two courses in another natural science.

Major Requirements. At least 6 semester-courses in physics from the available 100- and 200-level courses. Of these at least 1 course must be a laboratory course. A physics major also normally takes 2 courses of related work beyond the introductory level, in a program approved by his physics adviser.

The B.S. degree

Prerequisites. Physics 41-42 or 51-52 or equivalent; Mathematics 31-32 or equivalent, 103, 104, or 131; two courses in another natural science.

Major Requirements. At least 8 semester-courses in physics from the available 100- and 200-level courses. These courses are normally Physics 161, 171, 181, 176, 211, 212, 218 and 223. Those students planning graduate study are urged to take two or more electives in physics. A B.S. physics major also takes 2 courses of related work beyond the introductory level, in a program approved by his physics adviser.

The department offers to the student in his senior year the possibility of being associated with research conducted in this department. Such work may lead to graduation with distinction. See the section on Honors.

Political Science

Professor Barber, *Chairman*; Professor Hall, *Director of Undergraduate Studies*; Professors Ball, Braibanti, Cleaveland, Cole, Cook, Grzybowski, Hallowell, Hough, Kornberg, and Leach; Visiting Professor Palmer; Associate

Professors Fish, Johns, Paletz, and Price; Assistant Professors Eldridge, Hawley, Mishler, Salamon, Spragens, Trilling, and Valenzuela; Instructor Mook; Lecturer O'Barr

The objective of the Department of Political Science is to acquaint students with the theory and practice of government and politics at the local, state, national, and international levels. Although primary attention is focused upon the American political and administrative system, emphasis is also placed upon a comparative study of the political institutions and movements of thought peculiar to the nations of Europe, Latin America, Africa, and Southern Asia. The student's attention is also directed to the problems encountered in international organization, politics, and law. The development of political philosophy from Plato to the present day is an essential part of the department's course offerings. Methods of study include the empirical, the historical, the legal, the comparative, and the philosophical.

Directing its effort to an intelligent understanding of the contemporary world and of the responsibilities which are laid upon citizens of a democracy, the Department of Political Science shares the objectives of a liberal arts education. Although the department does not aim at vocational education, the knowledge it seeks to impart should be useful to anyone contemplating a career in law, government service, or politics.

Students intending to major in the department should take Political Science 61 or 61D. Ordinarily one of them must be taken before proceeding to more advanced work in the department. This rule may be waived with the consent of the Director of Undergraduate Studies.

The advanced courses are divided into four major groups. Majors are required to take at least 1 course in three of these groups.

Political Science 197 and 198 are designed to provide an opportunity for majors in the department to qualify for graduation with distinction.

INTRODUCTORY COURSES

61. The American Political System. Theory and practice of American government and politics. Federal-state relations, the separation and interrelationships of the executive, legislative, and judicial branches of government, judicial review, the role of political parties and public opinion, the formulation and execution of domestic and foreign policy, civil liberties. (Not open to students who have had Political Science 61D.) One course. *Staff*

61D. The American Political System. Introduction to American politics, emphasizing the impact of ideology and political culture and the role of parties and elections, interest groups and pluralist politics, and presidential leadership. Lectures and small discussion groups. (Not open to students who have had Political Science 61.) One course. *Price*

Students planning to major in political science or students seeking to meet the social science requirement should follow Political Science 61 or 61D with a 100-level course of their choice. Sophomores may not register in courses numbered above 200.

POLITICAL THEORY AND METHODOLOGY

123. Introduction to Political Philosophy. The nature and enduring problems of political philosophy, illustrated by selected theorists in the Western political tradition. One course. *Spragens*

124D. The Political Novel. Politics and political concepts (totalitarianism, utopianism, fascism, nihilism, obligation and rights (as portrayed

in the novels of Salome, Koestler, Orwell, Dostoevsky, and others. One course. *Hallowell, Mahler, and Moeller*

126. Democratic Theory and Political Reality. Normative goals and empirical analyses of existing democratic states. One course. *Spragens*

131. Introduction to American Political Thought. Basic elements in the American political tradition as developed from its English roots to the present. One course. *Cook*

132. Contemporary Political Ideologies. Communism, fascism, democracy, and other significant ideologies. One course. *Cook*

133. Policy Choice as Value Conflict. (Also listed as Public Policy Studies 116.)

197S. Principles and Methods of Political Inquiry. Philosophical, scientific, and behavioralistic approaches to political problems; contemporary conceptual frameworks, including systems analysis and functionalism, group theory, and mathematical models. Prerequisite: consent of the instructor. One course. *Trilling*

222. Empirical Theory. Critical examination of contemporary, non-normative conceptual frameworks for political inquiry, with emphasis on the qualifications of these frameworks as theories. One course. *Trilling*

223. Political Philosophy from Plato to Machiavelli. Intensive analysis of the political philosophies of Plato and Aristotle, a survey of medieval political thought and an analysis of the significance of Machiavelli. One course. *Hallowell*

224. Modern Political Theory. A historical survey and philosophical analysis of political theory from the beginning of the seventeenth to the middle of the nineteenth century. Attention is given to the rise of liberalism, the Age of Enlightenment, the romantic and conservative reaction, idealism, and utilitarianism. One course. *Hallowell*

229. Recent and Contemporary Political Theory. The rise of positivism and its impact upon modern political thought, the origins of socialism Marxism and its variants, socialism in the Soviet Union, nationalism, facism and national socialism, the crisis in modern democracy, Christianity, and the social order. (Not open to students who have taken Political Science 132.) One course. *Hallowell*

231. American Political Theory. An analysis of the main currents in American political thought from colonial beginnings to the present day, with emphasis upon the development of liberalism in America. One course. *Cook*

233. Research Methodology. Measurement, causal analysis, and comparison of different levels of analysis, and other problems in political research. One course. *Trilling*

236. Statistical Analysis. Introduction to statistics in political research, emphasizing inferential statistics through simple regression and correlation. One course. *Trilling*

249. Comparative Political Analysis and Political Development. General methodology of comparison of political systems. Institutional, structural, functional, and configurative modes of analysis. Theory of political development. Theoretical problems of induced political change. One course. *Braibanti*

260. The Tradition of Political Inquiry. Past and present problems, goals, presuppositions, and methods. One course. *Spragens*

COMPARATIVE GOVERNMENT AND POLITICS

101, 102. Introduction to the Civilizations of Southern Asia. (Also listed as Interdisciplinary Course 101, 102.)

117. Comparative Legal Systems. Origins, development, and mutual influences of modern legal systems: Roman and civil law; the Common Law and the Anglo-Saxon tradition; Islamic law; communist legal systems and the legal systems of Black Africa. One course. *Grzybowski*

135. Comparative Legislative Behavior. Structures, processes, functions, and behavior legislatures and legislative-like institutions in a variety of Western and non-Western societies with emphasis on the role of legislatures in policy formation, national integration, and modernization/development. One course. *Mishler*

136. Comparative Government and Politics: Europe. The impact of social and economic change of European politics. Totalitarian vs. pluralistic models. Formal and informal political integration. Special attention to Great Britain, France, West and East Germany, the Soviet Union. One course. *Cole and Johns*

151. Comparative Government and Politics: Latin America I. Historical and cultural context of political institutions and behavior; the role of traditional and emerging groups and forces; political instability and the decision-making process. One course. *Valenzuela*

152S. Comparative Government and Politics: Latin America II. Analysis of the politics of major countries including Argentina, Brazil, Chile, Cuba, and Mexico. One course. *Valenzuela*

155. Problems of Political Development in the New States. Survey of change and modernization in Africa and Asia; nationalism and neutralism, role of political parties, the military, and the bureaucracy in nation-building; economic growth and foreign aid. One course. *Braibanti*

161S. Comparative Government and Politics: Africa. Nationalism, nation-building, and problems of development in selected states of sub-Saharan Africa. One course. *Johns*

162. Comparative Government and Politics: Communist Political Systems. Analysis of selected communist movements in Europe, Asia, and the Third World with emphasis upon party structure and ideology. One course. *Johns*

165. Government and Politics of the Soviet Union. Analysis of the Soviet political system, emphasizing the sources of stability and instability and the responsiveness of its policies. Literature on the non-Soviet world (notably the United States) will be included. One course. *Hough*

180S. Comparative Government and Politics: Southern Asia I. Concepts of political development in new states, using India, Pakistan, Ceylon, and Malaysia as case studies. Theory and practice of foreign aid and technical assistance as agents of political modernization. One course. *Braibanti*

181. Comparative Government and Politics: Southern Asia II. The political modernization of India and Pakistan since 1947. Constitutional developments as revealed in leading court judgments will be studied. Other topics will be the ideology of administrative reform, formulation of state polity, rural development, and party politics. One course. *Braibanti*

182S. Comparative Government and Politics: Japan. Political change in modern Japan. State-building, democracy, political values, participation, and elite power. One course. *Mook*

195. Canadian Political Behavior in an American Perspective. The course focuses on two related dimensions of political behavior in an urban-industrial society with a liberal-democratic political system. The first is the endogenous conditions and processes that effect political behavior. The second is the impact that exogenous factors such as the extent of American control of the Canadian economy have on Canadian political behavior. One course. Kornberg

184S. Canada: The Problems and Issues of an Advanced Industrial Society. (Also listed as Interdisciplinary Course 184S.)

214. Comparative Administrative Law. Comparative analysis of the role of administrative techniques in established and transitional constitutional systems. French, German, British, and American patterns. Control of legality and expediency of various types of judicial review. One course. Grzybowski

225. Comparative Government and Politics: Western Europe. Modern political institutions and processes in Western Europe. One course. Cole

235. The Commonwealth. Analysis of political relationships among the members of the Commonwealth and a comparative study of the political systems of the Commonwealth countries, with emphasis on Canada. One course. Cole

250. Comparative Government and Politics: Southern Asia. The political development of India and Pakistan. Contextual determinants of the political systems. Political consequences of partition. National integration, constitutional, and institutional aspects of the political systems. Impact of foreign technical assistance. One course. Braibanti

252. Comparative Political Behavior and Socialization. Elites and mass publics in a variety of Western and non-Western societies including the United States; models of the political socialization process and their implications for democratic theory. One course. Mishler

253. Comparative Government and Politics: Latin America. Current literature applicable to an understanding of the major themes of Latin American politics. One course. Valenzuela

271. Political Processes in Traditional and Modern Africa. Patterns of change in selected African societies from the pre-colonial to the post-colonial period, emphasizing the interaction between traditional, colonial, and post-colonial institutions and their impact upon African societies. (Also listed as History 219.) One course. Hartwig and Johns

277. Comparative Party Politics. The impact of social and political systems on party structures, functions, ideologies, and leadership recruitment. Emphasis upon research techniques and objectives. One course. Kornberg

278. Canadian Political Behavior in the North American Context. Institutional processes and political behavior in Canadian and American societies. Impact of multi-partyism, federalism, political and cultural particularism, and the elite structure. One course. Kornberg

280. Comparative Government and Politics: Sub-Saharan Africa. Politics and government in selected African states, with particular attention to the problems of decolonization and modernization in the post-independence period. One course. Johns

AMERICAN GOVERNMENT AND PUBLIC ADMINISTRATION

100. Politics of Liberties and Equality. Theory and development of the Bill of Rights and the Fourteenth Amendment with attention to Supreme Court decisions and cultural and political forces. One course. *Fish*

105. The Black American in Politics. Behavior of black people in the American political system, with special attention to voting organizations and the Black power movement. One course.

108S. The American Presidency. The presidency and its impact on the American political system. One course. *Paletz*

109. State and Local Government Today. Problems in state, county, and city government: administration of services such as education, public welfare, law enforcement, inter-governmental relationships, administrative reorganization, methods of popular control, and the reconstruction of state and local government to meet present-day needs. One course. *Leach*

111S, 112S-113S. Administration of Justice. (Also listed as Public Policy Studies 151S, 152S-153S.)

114S, 115S-116S. Communications Policy. (Also listed as Public Policy Studies 154S, 155S, 155S-156S.)

125. American Political Parties and Practical Politics. A study of the historical development, organization, and methods of political parties in the United States. One course.

127. Law and Society. Nature and functions of law; Anglo-American legal institutions, the process of judicial decision-making, and the relationships among judges, lawyers, legislators, and administrators in the development of public as well as private law. One course. *Fish*

129. Groups in American Politics. Theory and practice of the interest group approach to the study of American politics. One course. *Paletz*

130. Politics and the Media of Mass Communication. Activities of the media of mass communication as they affect the American political system and process. Governmental impact on the mass media. One course. *Paletz*

134S. Problems in Communication. (Also listed as Public Policy Studies 108S.)

137. Political Behavior in Elections. Political participation; public opinion; voting behavior, sociological and psychological bases, comparative studies, models and methodology of research. One course. *Trilling*

140. Administrative Law and Government. Fundamentals of the American system of law and government as reflected in the administrative process. One course. *Hall*

141. Public Administration. An introduction to the role of administration in the governmental process considering principles of administrative organization, methods of administrative control, personnel, and fiscal management. In general the study of the organizational and administrative problems encountered by any government agency charged with carrying out a public policy. One course. *Cleaveland and Hall*

142. Administrative Responsibility. An evaluation of political, legal, and administrative methods of achieving a responsible bureaucracy in American national government. Comparisons with relevant experience and techniques in other countries such as Great Britain and France. One course. *Hall*

- 144. Twentieth Century American Politics.** One course. Price.
- 145. Political Analysis for Public Policy-Making.** (Also listed as Public Policy Studies 114.)
- 167S. Ecology and Social Action.** (Also listed as Interdisciplinary Course 167S.)
- 170S. The Legal Process and Social Change.** The role of the legal system in effecting and mediating social change. Consideration of different strategies and the circumstances in which they are effective. One course. *Fleishman*
- 171S, 172S-173S. Educational Policy.** (Also listed as Public Policy Studies 140S, 141S-142S.)
- 177S, 178S-179S. Urban and Regional Development Policy.** (Also listed as Public Policy Studies 177S, 178S-179S and Engineering 177S, 178S-179S.)
- 187S. Political Psychology.** Psychological aspects of political performance by citizens, activists, and leaders. Prerequisite: consent of instructor. One course. *Barber*
- 199. The Changing South.** (Also listed as Interdisciplinary Course 199.)
- 206. Politics and the Media.** The relationship between the media of mass communication and the American political process. Open to upperclassmen with permission of instructor. One course. *Paletz*
- 207. American Constitutional Interpretation.** Development of the Constitution of the United States through Supreme Court decisions. Prerequisite: Political Science 127. One course. *Fish*
- 209. Problems in State Government and Politics.** A study of the historical development of state governments, their present organization and subdivisions, and their relation to each other. Special attention is given to the position of the states in the federal union through the study of federal-state, interstate, and state-local relations. One course. *Leach*
- 210. The Politics of Education.** The forces in local, state, and national politics which impinge on educational policy-making and administration. One course. *Leach*
- 230. American National Government.** Formation and contemporary operation of the national political system; historical and behavioral approaches. One course.
- 241. Public Administrative Organization and Management.** The American administrative process: theory and practice of administrative organization and management. One course. *Hall*
- 243. Administrative and Organizational Theory.** Behavioral analysis of public organizations with emphasis on the impact of organizational structures, individual needs and motivation, and politics on the formulation and implementation of public policy. (Also listed as Public Policy Studies 224.) One course. *Hawley*
- 244. Administrative Law and Process.** The nature and law of the administrative process in the context of American government and politics, with special attention to the powers, procedures, and judicial control of administrative agencies. One course. *Hall*
- 245. Ethics and Policy Making.** (Also listed at Public Policy Studies 223.)

246. Administration and Public Policy. The role of administration in the American policy process. One course. *Hall*

247. Political Participation and Policy Outcomes. (Also listed as Public Policy Studies 247.)

248. The Politics of the Policy Process. (Also listed as Public Policy Studies 219.)

273S. Modernization in the American South. Evaluates the usefulness of modernization theory in analyzing the historical roots of backwardness in the South and the dynamics of recent processes of social, economic, and political change. One course. *Salamon*

275. The American Party System. An intensive examination of selected facets of American national political parties, such as relationships between presidential and congressional politics, the politics of national conventions, recent foreign policy and party alignments, and the controversy over party government. One course. *Kornberg*

279. The Legislative Process. An analysis of the structure and functions of Congress with emphasis on the behavior of legislators and resultant public policy. Some considerations will be given to American state and foreign legislatures. One course. *Paletz*

283S. Congressional Policy-Making. Lawmaking and oversight in the U.S. Congress. Committee roles. Impact of the executive and other external forces. One course. *Price*

285. The Judicial Process. A study of judicial decision-making in the United States, with emphasis on the process of litigation, the recruitment of judges, the influences and limits on judicial decisions, and their impact within the political system. Prerequisite: Political Science 127 or 207 or the equivalent. One course. *Fish*

291. Problems of Urban Government. One course. *Leach*

293. Federalism. Theoretical and operational aspects of federalism, with emphasis on their application in the American governmental system. One course. *Leach*

INTERNATIONAL LAW AND RELATIONS

120. Conflict Resolution: Problems of War and Peace. The causes and preconditions of human conflict including such factors as deprivation, elite misconceptions, national myths, and civil strife. Consideration of restraints to violent conflict such as negotiation and bargaining. Relevant contemporary international issues such as Vietnam are studied within the context of current social science research. One course. *Eldridge*

121. Elements of International Relations. The nature of international politics; the analysis of national power; the instruments of foreign policy; and the controls of state behavior. One course. *Ball, Eldridge, and O'Barr*

122. Modern International Politics. An examination of the major problems of postwar international politics with particular attention to the extension of Soviet power, the Western response to this challenge, and the revolutions in the Afro-Asian world. One course. *Eldridge and O'Barr*

157. U. S. Foreign Policy. Principles and problems; changing concepts of diplomacy. One course. *Palmer*

158. Control of American Foreign Policy. Governmental and nongovernmental forces which influence or determine American foreign policy. Impact of international organizations and public opinion on policy formation. One course. *Ball*

166. Soviet Foreign Relations. Nature of relations with other states. Determinants and formulation of foreign policy. One course. *Hough*

220. Problems in International Politics. Such topics as nuclear power, bipolarity and polycentrism, nationalism, national interests and ideology, the revolution of modernization, and regional integration. One course. *Palmer*

221. International Organization. The functioning of the United Nations system and of regional organizations operating in the political and security fields. One course. *Ball*

226. Theories of International Relations. Contemporary theories of international relations and foreign policy. Emphasis on the interdependence of theory and empirical research. One course. *Eldridge*

227. International Law. Elements of international law, particularly as interpreted and applied by the United States; rights and duties of states with respect to recognition, state territory and jurisdiction, nationality, diplomatic and consular relations, treaties, treatment of aliens, pacific settlement of disputes, international regulation of the use of force, and collective responsibility. One course. *Grzybowski*

228. Soviet Public International Law. Institutions and doctrines of the international law of peace as interpreted and applied by the Soviet government. Basic concepts including the theory of socialist international law and principle of peaceful coexistence. One course. *Grzybowski*

237S. Problems in American Foreign Policy. The decision-making process as applied to contemporary foreign policy issues. Prerequisite: Political Science 122 or the equivalent. One course. *Ball*

238. Comparative Foreign Policy. An application of comparative theory to the foreign policy decision-making processes of major, middle range, and developing states. Prerequisite: one advanced course (100-level) in international relations and/or one course in comparative politics. One course. *Eldridge*

INDEPENDENT STUDY AND INTERNSHIPS

189, 190. Internship. Open to enrollment by students engaging in practical political or governmental work experience during the summer or a regular semester. To enroll a student must obtain the approval of the Director of Undergraduate Studies, arrange employment, and secure the agreement of a departmental faculty member to supervise a program of study related to the work experience. Two courses.

191, 192. Independent Study. Directed reading and research. Open only to qualified juniors by permission of the Director of Undergraduate Studies and of the individual instructor. Two courses. *Staff*

193, 194. Independent Study. Directed reading and research. Open only to seniors by permission of the Director of Undergraduate Studies and of the individual instructor. Two courses. *Staff*

UNDERGRADUATE SEMINARS

Intermediate Seminar. One-hundred-level courses designated in the class schedule with an S will be limited in enrollment to a maximum of fifteen students and conducted as seminars. Different courses will be so designated in different years. Consult the official class schedule issued at the beginning of each semester for those currently being offered.

Senior Seminars in Political Science. Prerequisites: Political Science 61 or 61D and one 100- or 200-level course in the field represented by the seminar, and the consent of the instructor. Preference given to majors. Each seminar will not necessarily be offered every year. Consult the official class schedule.

200S A. Seminar in American Government and Politics. One course. Staff

200S B. Seminar in Comparative Government and Politics. One course. Staff

200S C. Seminar in Political Theory. One course. Staff

200S D. Seminar in International Relations. One course. Staff

198. Seniors Honors Seminars. Open only to senior political science majors who are candidates for the degree with distinction. Preparation and writing of a research paper; group meetings to discuss common problems. Prerequisites: Political Science 197 and the consent of the instructor. One course. Staff

DEPARTMENTAL MAJOR

Major Requirements. Political Science 61 or 61D. Seven courses in the department above 61 or 61D including two 200-level courses or 200-level seminars. Majors must take at least one course in each of three fields. Four related courses in departments approved by the political science adviser. Such courses are usually taken in the Departments of Economics, History, Philosophy, Psychology, and Sociology.

Honors. Any student who is qualified (see the section on Honors in this Bulletin for general requirements) may undertake work leading to a degree with distinction in political science by presenting himself to the Director of Undergraduate Studies as a candidate. In addition to meeting the normal requirements of a major in the department, the candidate for graduation with distinction must take Political Science 197 and 198. He must prepare a research paper on which he will be examined orally by a committee of three departmental faculty members.

Psychology

Professor Alexander, Chairman; Professor Lakin, Acting Director of Undergraduate Studies; Professors Borstelmann, Brehm, Carson, Diamond, Guttman, Jones, Lockhead, H. Schiffman, Staddon, and M. Wallach; Associate Professors Costanzo, C. Erickson, R. Erickson, Hall, and Wing; Visiting Associate Professor A. Conger; Assistant Professors Aderman, Coie, Eckerman, Fischer, Kalat, Kremen, Levy, Norton, Robinson, Roth, and White; Lecturers Burkheimer, Casseday, Clifford, J. Conger, E. Crovitz, H. Crovitz, Davis, Gehman, Gentry, Kinsbourne, Krugman, Obrist, Oppenheim, Peele, Shows, Somjen, Thompson, L. Wallach, and Wolbarsht; Adjunct Instructor Musia Lakin; Research Associate S. Schiffman

70S, 71S. Freshman Seminars. Intensive experience through the study of one or two problems of special interest; does not fulfill departmental prereq-

quisites. Prerequisite: departmental permission. Half-course or one course each. Staff

The following 4 first-level courses are open to freshmen, sophomores, juniors, and seniors without prerequisite. Some of these courses will have discussion sections or preceptorials, with the availability of these experiences to be specified prior to registration. Students in each of these courses are expected to participate as subjects in 3-6 hours of psychological research. An individual student need fulfill this requirement only once, even though he takes more than one course at this level.

92. Sensation, Perception, and Learning. Sensation, including psychophysics and receptor processes. The concept of reflex, both physiological (Sherrington) and behavioral (Pavlov). Complex organization: learning, perception, and cognition. One course. Guttman, Lockhead, Schiffman, and Staddon

93. Biological Basis of Behavior. Behavior as a product of evolution and the role of behavior in species survival. Neural and endocrine factors in reproduction, hunger, thirst, emotion, and intelligence. Heredity-environment in the development of behavior. One course. Diamond, C. Erickson, and Kalat

94. Personality. Representative theories of personality, from Freud to the present, emphasizing problems of normal personality structure, dynamics, development, and assessment. One course. Alexander, Carson, and Kremen

95. Developmental Psychology. Theory and research on growth and behavior from infancy to adolescence. One course. Borstelmann, Coie, Costanzo, and Eckerman

Intermediate and Advanced Lecture Courses. Some of these offerings will include discussion sections or preceptorials, as specified prior to registration.

101. Social Psychology. Problems, concepts, and methods in the study of social interaction and interpersonal influence. Prerequisite: one course in psychology at the 90-level or permission of the instructor. One course. Aderman and Jones

110. Applied Psychology. Applications of psychology to problems of personnel selection, industrial efficiency, advertising, and selling. Prerequisite: one course in psychology. One course. Staff

117. Statistical Methods in Psychology. Elementary statistical techniques and their application to the analysis and interpretation of psychological data. Theory of inference is stressed. Psychology majors only. One course. Staff

122S. Seminar in Child Observation. Children are observed in the group setting of the University Preschool and Primary Program. Aspects of personality, social development, and child-adult relationships. Open only to junior and senior psychology majors with the permission of the instructor. One course. Musia Lakin

131. Visual Perception. Structure and function of visual systems, perception of form and brightness, color vision, depth perception, adaptation, and perceptual development. Prerequisite: Psychology 92 or 93 or permission of instructor. One course. White

132. The Psychology of Individual Differences. Nature and causes of individual and group variations in intelligence, special abilities, social and emotional characteristics. Prerequisite: one course in psychology. One course. *Wing*

133. Biological Aspects of Learning. Evolution of learning abilities; specialized learning abilities; physiological mechanisms of learning. Prerequisite: Psychology 92 or 93. One course. *Kolot*

134. Psychology of Language. An integrative, theoretical approach to psycholinguistics stressing the relation of language and speech to other areas in psychology. One course. *Robinson*

138. Abnormal Psychology. Disordered behavior and constructive personality change are viewed in interpersonal and social context for purposes of understanding normal and abnormal personality development and functioning. Prerequisite: Psychology 94 or 95. One course. *Carson and Lakin*

139. Motivation. Contemporary use of such concepts as instinct, drive, and expectancy in the explanation of behavior; the role of nervous mechanisms and hormones in the control of goal-directed behavior. Prerequisite: Psychology 92 or 93. One course. *C. Erickson, R. Erickson, and Eckerman*

Laboratory Courses (140 through 149). These courses are open chiefly to juniors and seniors. The subject matter varies, but these courses have in common a concern with the design and execution of psychological experiments. Students will find them helpful as a means of gaining experience before engaging in independent study.

140S. Research Methods in Child Psychology. Prerequisite: Psychology 95. One course. *Coie, Eckerman, and L. Wolloch*

141S. Tests and Measurements. Test methods used by psychologists to measure and evaluate mental processes. Prerequisite: Psychology 117 or the equivalent. One course. *Schiffman and Wing*

142S. Instrumental Behavior. Laboratory course using animal subjects in operant-conditioning situations. Prerequisite: Psychology 92. One course. *Guttman and Stoddon*

143S. Experimental Methods in Cognitive Psychology. Human cognition; language, memory, problem-solving, and other higher mental processes. One course. *Stoff*

144S. Learning and Adaptive Behavior. Basic principles of adaptive behavior in animals, with special emphasis on the effects of reinforcement. Participation in experiments with animals. Prerequisite: Psychology 92 or 93, or permission of instructor. One course. *Stoddon*

145S. Experimental Approaches to Personality. Methods applied to personality research. Prerequisite: Psychology 94. One course. *Costanzo, Schiffman, and Wolloch*

146S. Experimental Comparative Psychology. Animal behavior from evolutionary and physiological viewpoints. Emphasis on methodology. Prerequisite: Psychology 92 or 93. One course. *C. Erickson and Kolot*

147S. Experimental Social Psychology. Group dynamics, attitude change and interpersonal perception. Prerequisite: Psychology 101. One course. *Aderman, Brehm, and Jones*

148S. Psychology of Perception and Thinking. Basic phenomena of per-

ception and thinking as determined by conditions in the external situation and in the person—biological and psychological. Prerequisite: Psychology 92. One course. *H. Crovitz and Lockhead*

149S. Physiological Psychology Laboratory. Neural bases of behavior, sensory and motor functions of the nervous system, and problems of emotion, motivation, and consciousness. Laboratory in psychophysics and the electrical activity of the nervous system. Prerequisite: permission of instructor. One course. *R. Erickson*

152S. Psychological Approaches to Contemporary Problems. Relevance of various psychological theories and findings to selected contemporary issues. Prerequisite: permission of the instructor. One course. *Staff*

165S. Personality Theory. Theories of personality from larger metatheoretical perspectives. Open to junior and senior majors in psychology, or by permission of the instructor. Prerequisite: Psychology 94. One course. *Alexander or Kremen*

170S. A-D. Seminar in Selected Problems. One course each. *Staff*

Tutorial Study. For juniors and seniors. Small group discussions about influential books and articles in psychology. The availability of tutorials, their content, and their instructors will be announced before registration.

171T, 172T. Junior Tutorial. Prerequisites: Psychology 92 or 93, Psychology 94 or 95, and permission of the Director of Undergraduate Studies. Half-course or one course. *Staff*

173T, 174T. Senior Tutorial. Prerequisites: Psychology 92 or 93, Psychology 94 or 95, Mathematics 32, 51, 133, 135, 136, or Psychology 117 or the equivalent, and permission of the Director of Undergraduate Studies. Half-course or one course. *Staff*

177, 178. Independent Research. Admission to the course requires formulation of a study plan with a faculty supervisor and approval of the Director of Undergraduate Studies. Prerequisites: Psychology 92 or 93, Psychology 94 or 95, and one psychology course numbered 140 through 149; Mathematics 133 or Psychology 117 will be helpful. One or two courses. *Staff*

191, 192. Junior Independent Study and Research. Directed reading and research. Open only to highly qualified juniors who expect to graduate with distinction in psychology. Prerequisite: permission of the department. One or two courses. *Staff*

193, 194. Senior Independent Study and Research. Directed reading and research for seniors planning to graduate with distinction in psychology. Prerequisite: permission of the department. One or two courses. *Staff*

Courses at the 200-level are open to selected undergraduates only with written permission of the instructor.

203. Sensation and Perception. An examination of the classical concepts in sensation and perception and of the resulting psychophysical data for each of the major senses with emphasis on vision and audition. Modern perceptual formulations are discussed through analysis of the empirical evidence in support of each view. One course. *Lockhead*

204. Comparative Psychology. Ontogeny, evolution, adaptive significance, and physiology of animal behavior. One course. *C. Erickson*

210. Cognitive Psychology. Theoretical approach; stresses intercon-

nections across perception, memory, thinking, language, and use of models. One course. *Robinson*

213. Adaptive Behavior. The principles of adaptive behavior, with special emphasis on the effects of reinforcement. Prerequisite: consent of instructor. One course. *Staddon*

215. Developmental Psychology. Theories of human development. One course. *L. Wallach and Staff*

216. Biological Psychology. The methods of biology (as applied to psychology), especially in neurophysiology, neuroanatomy, and genetics. Topics covered include: the genetics of behavior, the organization of the dorsal thalamus and neocortex, and the limbic system and hypothalamus. Methods covered include: ablation method, method of evoked potential, electrical stimulation of the brain, and classical and physiological genetics. One course. *Diamond*

217. Social Psychology. Social factors in cognition, models of social interaction, conformity and social influence, and attitude development and change. One course. *Jones*

218. Research Methods in Social Psychology. Emphasis on the interplay between experimental design and technique. One course. *Aderman*

219. Neural Bases of Behavior. Structure and function of the nervous system as related to problems of sensory-motor processes, learning, and memory. One course. *R. Erickson*

220. Physiological Bases of Behavior. Emphasis on the neural, hormonal, and developmental bases of motivational behavior. One course. *C. Erickson*

228. Visually Guided Behavior. Anatomical and physiological maturation of the nervous system structures mediating visual behaviors. How the maturation of the visual pathway may contribute to the development of these behaviors. One course. *Norton*

234. Seminar in Personality. Selected topics of current interest concerning empirical research on personality. Strategies for the definition of research questions and the evaluation of research progress. One course. *M. Wallach*

238. Electroencephalogram and Psychological Function. A survey of experimental and clinical literature on brain wave correlates of intelligence, personality, behavior disorders, epilepsy, sleep, sensory stimulation, reaction time, and attention. Special emphasis is placed on the electrophysiology of conditioning and learning. Lectures, laboratory demonstrations, and clinical case presentations. One course. *Obrist*

239. Behavioral Correlates of Brain Damage in Man. Effects of brain damage on psychological functioning. Known brain-behavior relationships and problems encountered in the study of brain function. Laboratory demonstrations for assessment of cerebral dysfunction through the use of standard psychological tests. One course. *Thompson*

245. Personality Theory I. Representative theories of human functioning, from Freud to neoanalytic approaches. One course. *Alexander and Kremen*

246. Personality Theory II. Representative models of human functioning, as field theory, behavior theory, type or trait theory, and ego psychology. One course. *Alexander and Kremen*

271S. Selected Problems. One course. *Staff*

273-274. Principles of Psychological Measurement. Measurement theory and the problems of scientific inference. Methods of data analysis, psychometric scaling, and test construction. Prerequisite: Mathematics 232 or equivalent. Two courses. *Schiffman*

276. Comparative Neurology and Psychology. (Also listed as Anatomy 271.) One course. *Hall*

282. Introduction to Methods in Psychotherapy. Current trends in psychotherapeutic practice and research. Application of principles drawn from theories of personality to individual and group psychotherapy. Prerequisite: consent of the instructor. One course. *Carson and Martin Lakin*

283, 284. The History of Psychology. First semester: Aristotle to Kant; second semester: development of modern psychology. Prerequisite for 284: Psychology 283 or permission of instructor. One course or two courses. *Guttman*

291. Seminar in Community Mental Health. Psychological epidemiology and ecology; primary, secondary, and tertiary prevention; the public health approach to problems of psychological disorders and psychological well-being. Focus on intervention techniques, such as consultation and community action planning. One course. *Staff*

293. Methods in Developmental Psychology. Methodological and epistemological issues in research in development. Individual and group research projects. One course. *Staff*

DEPARTMENTAL MAJOR

Major Requirements. Eight courses in psychology, including 92 or 93 and 94 or 95, Psychology 117, plus 5 additional psychology courses of the student's selection. Mathematics 32, 135, 136, Computer Sciences 51, or Management Science 60 may be substituted for Psychology 117 but do not count as 1 of the 8 required psychology courses.

Students seeking a B.S. degree must complete, in addition to the above requirements, a minimum of 4 laboratory courses in the sciences and Mathematics 31 and 32, or their equivalent.

Public Policy Studies

Associate Professor Fleishman, Director; Assistant Professor Hawley, Director of Undergraduate Studies; Professors Estes (Medicine) and Hough (Political Science); Associate Professors Behn, Lange (Law), and Price; Assistant Professors Bell (Law), Cook, Fischer, Salamon, and Vaupel; Adjunct Assistant Professor Scheffler (Economics); Lecturer Payne

The major in public policy studies is offered through the Institute of Policy Sciences and Public Affairs. The course of study stresses the development of analytical and problem-solving skills that cut across several academic disciplines and can be applied in a broad range of public policy areas. In addition, students in the major are expected to develop an in-depth knowledge of one or more general areas of public policy (e.g., health, communications, criminal justice, education, etc.).

The aim of the major is to furnish students with a firm background in the social sciences and with sufficient competence in analytical and quantitative

methods to qualify them for professional school, graduate study, or staff positions in public service. At the same time, the Institute of Policy Sciences and Public Affairs believes that policy-makers must be able to put public issues in their historical perspective and to see the social and philosophic, as well as quantifiable, dimensions of problems. Thus, majors will be encouraged to choose related work in fields such as sociology, psychology, history and ethics, and to participate actively in numerous programs offered at the Institute which aim at augmenting formal course work. A senior seminar permits majors to gain facility in the use of their analytical skills by pursuing research on selected topics in public policy-making and analysis.

Courses in public policy studies are open to all students providing that the prerequisites cited for individual courses are met. Majors are given preference in admission to internship courses.

55. Introduction to Analytical Methods for Public Policymaking: Structuring Policy Problems. Defining public policy problems, identifying objectives, and evaluating costs and benefits. Uses and limitations of decision analysis in selecting among alternatives. One course. *Behn, Fischer, and Vaupel*

110. Economic Analysis for Public Policymaking: Microeconomic and Non-Probabilistic Models. Survey and application of analytical tools required for understanding public policy problems. (Also listed as Economics 161.) One course. *Cook*

112. Policy Evaluation and Social Experimentation. The uses and limitations of various statistical methods, including social experimentation, for monitoring and evaluating public policies. Prerequisite: Public Policy Studies 55. One course. *Behn and Fischer*

114. Political Analysis for Public Policymaking. Analysis of the political and organizational processes which influence the formulation and implementation of public policy. Alternative explanatory models. (Also listed as Political Science 145.) One course. *Behn and Salamon*

116. Policy Choice as Value Conflict. The normative dimensions of public policy. Analysis of cases in selected policy areas, including the space program, poverty, ecology, and higher education. Instructor's permission required except for those majoring in public policy studies. One course. *Payne*

120S. The Humanistic Study of Society. Works by some outstanding social observers, including James Agee, Robert Coles, George Eliot, William Faulkner, George Orwell, and Eudora Welty will be studied in order to develop an understanding of the human consequences of public policy. Specific attention will be given to the lives of those near the bottom of the social order, and to problems of race and social class. Prerequisite: consent of instructor. One course. *Payne*

174. Technology Assessment and Social Choice. Engineering, economic, psychological, and ethical problems in designing technological systems. Citizen participation and feedback; impact evaluation; case studies in areas such as biomedical, communications, and computer technology. (Also listed as Engineering 174.) One course. *Garg and Clark*

191, 192. Independent Study. Directed reading and research. Two courses. *Staff*

193, 194. Independent Study. Directed readings and research for seniors. Two courses. *Staff*

217. The Application of Microeconomics to Public Policymaking. Consumption and production theory, welfare economics, theories of collective choice, market structures and regulation, and nonmarket decision-making. One course. Cook

219. The Politics of the Policy Process. The formulation of public policy-making conditions, substantive policies in a variety of contexts from local government to international affairs; the role of legislatures, interest groups, chief executives, and the bureaucracy in defining alternatives and in shaping policy from agenda formulation to implementation. One course. Salamon

221. Analytical Methods I: Forecasting Consequences of Policy Alternatives. The decision analysis approach (broadly defined) as a strategy for policymaking; uses and limitations of deterministic, probabilistic, unitary, and interactive models for guesstimating the consequences of policy alternatives, including modeling techniques for structuring policy problems and statistical techniques for gathering and processing data for models. One course. Vaupel

222. Analytical Methods II: Appraising Consequences of Policy Alternatives. Various methods for appraising and weighing the consequences of policy alternatives, including the uses and limitations of economic utility theory, probabilistic preference theory, time preferences, multi-attribute preference trade-offs, cost/effectiveness analysis, cost/benefit analysis, scoring systems, performance indices, objective functions, indifference curves, Pareto optimality, market and shadow prices, willingness to pay, consumer's surplus; concludes with a discussion of some formal decision analysis and mathematical programming. Prerequisite: Public Policy Studies 221. One course. Vaupel

223. Ethics and Policy-Making. The ethical bases of public policy-making; the core values and biases of policy-making in America, responsiveness and obligation among public officials, problems in the application and implementation of political norms, dilemmas of value choice and conflict. Critical attention will be given both to accepted political and moral norms and to the current state of policy in various substantive areas. (Listed also as Political Science 245.) One course. Price

224. Administrative and Organizational Theory. (See description for Political Science 243. Listed also as Political Science 243.) One course. Hawley

247. Political Participation and Policy Outcomes. Impact of citizen participation upon governmental decision-making. Theoretical issues and empirical evidence (primarily American, but partly comparative). (Listed also as Political Science 247.) One course. Hough

258. Seminar on Aging. Policy alternatives suitable for legislative or executive solutions to the problems of aging. Sponsored jointly with the Center for the Study of Aging. One course. Staff

INTERNSHIP COURSES

The Institute internship courses provide students with an opportunity to develop a basic understanding of one or more public policy areas, to test that understanding on the job during the summer (stipends are provided), and to return to the classroom to build on this knowledge and experience. Ex-

cept under unusual circumstances, student's must take the entire course sequence to receive credit for any part of an internship course. Students interested in internships in other policy areas, other than those listed below, should contact the Director of Undergraduate Studies in Public Policy. Applications for enrollment in the internship courses must be obtained in the early fall from the Director of Internship Programs (120 Old Chemistry). The following internship courses offered for 1974 include:

140S, 141S-142S. Education Policy. Theories and processes related to the governance and finance of public education in the United States; consequences of alternative policies are examined in the context of factors that influence the creation of effective learning environments and the impact of schools on individuals and on society in general. (Also listed as Political Science 171S, 172S-173S.) Three courses. *Grabowski and Hawley*

151S, 152S-153S. Administration of Justice. Analysis of the policy problems and conflicts involved in the operation of the criminal justice system. Three sequential courses; spring, summer (including internship), and fall, respectively. Instructors' permission required except for those majoring in public policy studies. (Also listed as Political Science 111S, 112S-113S.) *Staff*

154S, 155S-156S. Communications Policy. Considerations and analysis of the policy problems and conflicts involved in governmental regulation of the media of communication. Three sequential courses; spring, summer (including internship), and fall, respectively. Instructors' permission required except for those majoring in public policy studies. (Also listed as Political Science 114S, 115S-116S.) *Staff*

157S, 158S-159S. Health Policy. Analysis of health care problems and policies. Three sequential courses; spring, summer (Including internship), and fall, respectively. Instructors' permission required except for those majoring in public policy studies. (Also listed as Economics 176S, 177S-178S.) *Scheffler, Estes, and Staff*

160S, 161S-162S. Environmental Policy. Analysis and evaluation of the policy problems and conflicts which result from human interaction with the environment. Three sequential courses; spring, summer (including internship), and fall, respectively. Instructors' permission required except for those majoring in public policy studies. (Also listed as Economics 166S, 167S-168S.) *Staff*

177S, 178S-179S. Urban and Regional Development Policy. Analysis of inter-governmental solutions to urban problems including the provision of metropolitan-wide public services. Offered spring, summer (including internship), and fall respectively. Prerequisite: consent of instructors. (Listed also as Engineering 177S, 178S-179S and Political Science 177S, 178S-179S.) Three courses. *Dajani and Salamon*

180S, 181S-182S. Transportation Policy. Prerequisite: consent of instructor. (Also listed as Engineering 180S, 181S-182S.) Three courses. *Behn, Garg, and Staff*

DEPARTMENTAL MAJOR

Prerequisites. Mathematics 31, Computer Science 51, or Philosophy 103; Economics 2 or 52; Political Science 61 and Public Policy Studies 55.

Major Requirements. Public Policy Studies 110, 112, 114, 116, and a senior seminar, plus a one internship course.

Religion

Professor Poteat, *Chairman*; Associate Professor Partin, *Director of Undergraduate Studies*; Professors Bradley, Jones, Osborn, Phillips, and Price; Associate Professors Clark, Kort, McCollough, Meyers, and Wintermute; Assistant Professors Bland, Burford, Charlesworth, Corless, and Lawrence; Visiting Assistant Professor Johns; Lecturers Little and Shows

The academic study of religion is integral to a liberal education. The curriculum is determined by the subject around which the department is formed, by the various areas and methods for the study of religion, and by the department's desire to increase and discipline the students' understanding of and appreciation for those religious phenomena and problems brought into focus by each area and method.

In addition to Biblical studies and studies in Christian history, ethics, and theology, the department offers courses in Judaic and non-Western religious studies as well as courses of a substantially interdisciplinary character (religion and the social sciences and religion and the humanities).

Courses numbered below 100, with the exception of Religion 70S and Religion 71S, are open to all students. Religion 70S and 71S are freshman-sophomore seminars. (The specific topics for these seminars and the names of instructors will be announced prior to registration.) One-hundred-level courses are open to juniors and seniors without prerequisites except in the cases in which the requirement of permission of the instructor is stated at the end of the course description. Freshmen and sophomores who have completed one course below 100 may be admitted to 100-level courses with the exception of junior-senior seminars. (The topics for these seminars and the names of the instructors will also be announced prior to registration.) Courses at the 200-level are open to upperclassmen with the permission of the instructor.

50. The Old Testament. Historical, literary, and theological investigations. Not open to students who have had Religion 55 or 55D. One course. *Staff*

52. The New Testament. Origins, development, and content of thought. Not open to students who have had Religion 55 or 55D. One course. *Staff*

55. The Religion of the Bible. A historical, cultural, and theological study of the Old and New Testaments. Not open to students who have had Religion 50, 50D, 52, or 52D. One course. *Staff*

50D, 52D, 55D. Same as 50, 52, 55 with discussion section included. One course. *Staff*

57. Introduction to the History of Religions. Historico-religious study of primitive religions, Hinduism, Buddhism, Islam, and other religions. One course. *Staff*

59. Problems in Theology and Ethics. Philosophical, theological, and cultural problems, such as the existence of God, ethical theory, religious language, and the relation of religion to culture. One course. *Staff*

70S, 71S. Freshman-Sophomore Seminars: Religious Studies. Topics and instructors to be announced. Two courses.

BIBLICAL STUDIES

104. The Prophets of the Old Testament. Their historical setting and message. One course. Wintermute

105. Theology of the Old Testament. Emphasis upon history and eschatology, covenant, messianism, and wisdom. One course. *Staff*

106. Jesus and the Synoptic Gospels. The gospel tradition in the New Testament. One course. *Charlesworth and Price*

107. Theology of the New Testament. A systematic analysis of the theologies of the New Testament writers and an attempt to synthesize the basic and shared themes. One course. *Charlesworth and Price*

108. The Life and Letters of Paul. Paul's role in the expansion of the Christian movement, the most important aspects of his thought, and his continuing influence. One course. *Charlesworth and Price*

111. The Historical Jesus. Historical research on the life of Jesus. One course. *Charlesworth and Price*

195A, 196A. Junior-Senior Seminars: Biblical Studies. Topics and instructors to be announced. Two courses.

Students interested in acquiring the linguistic tools required for graduate courses in biblical studies are referred to the offerings of the Classics Department in this *Bulletin* for elementary Greek and the *Divinity School Bulletin* for courses in biblical Hebrew and Aramaic.

228. Theology of the Gospel and Epistles of John. A study of the origin of these writings, the provenance of their thought forms and symbolism, their influence on the early church, and their contemporary significance. One course. *Price*

HISTORY OF CHRISTIANITY AND JUDAISM

120. History of the Christian Church. Crucial events, issues, forms, and writings that have shaped the Christian community and influenced Western civilization from the time of the early church. One course. *Jones*

121. Christianity in Europe from the Middle Ages to the Protestant Reformation. The decline of the medieval Church and the origins of the Protestant Reformation. One course. *Staff*

122. Protestantism and Catholicism in Modern Europe. Reformation and Counter-Reformation, confessionalism, religious conflicts, and the secularization of European Christianity. One course. *Staff*

124. Christianity in America. Representative men, movements, and thought in American Christianity. One course. *Jones*

125. Religion and Theology of Black America. Black religion in its historical and social context, with critical appraisal of major works. One course. *Burford*

126. Themes in Christian Theology. Study of Christian teachings concerning God, Jesus Christ, sin, and salvation, intended to serve as a basis for the student's evaluation of his own religious concepts. One course. *Osborn*

128. The Background of Contemporary Christian Thought: 1918-1950. Theology of Karl Barth, Rudolf Bultmann, Paul Tillich, Karl Rahner, Reinhold Niebuhr, and others. One course. *Osborn*

129. The Frontiers of Contemporary Christian Thought. Radical and prophetic movements as represented by Dietrich Bonhoeffer, Harvey Cox, Leslie Dewart, Jurgen Moltmann, and others. One course. *Osborn*

130. Christian Ethics. Ethical implications of biblical religion, the historical development of the Christian ethics, and the ethical dimensions of contemporary social life. One course. *Clark and McCollough*

131D. Principles of Archaeological Investigation. (Formerly Religion 101D.) Supervised field work, visits to other excavations, introduction to ceramic chronology, numismatics, and other related disciplines. Excavation of a late Roman village in Galilee. Offered in Israel, only in the summer. One course. *Meyers*

132D. Palestine in Late Antiquity. (Formerly Religion 102D.) The history, literature, and archaeology of Roman Palestine with particular emphasis on Galilee in rabbinic and early Christian times. One course. *Meyers*

133. The Foundations of Post-Biblical Judaism. (Formerly Religion 144.) History, religion, and literature of Pharisaic and sectarian Judaism from the time of Ezra to Rabbi Judah. One course. *Meyers*

134. Jewish Mysticism. The main historical stages, personalities, texts, and doctrines from Rabbinic to modern times. One course. *Bland*

135. Jewish Religious Thought. Doctrines, dialectics, and religious attitudes of pre-Enlightenment theologians. One course. *Bland*

136. Contemporary Jewish Thought. (Formerly Religion 146.) Modern Jewish thought from Mendelsohn to the present, with particular reference to American thinkers. One course. *Meyers*

137. Structure and Theology of Jewish Prayer. Historical and thematic analysis of the liturgical cycle. One course. *Bland*

139. Modern Hebrew. Representative texts from the modern period, with an introduction to the colloquial language of Israel. One course. *Staff*

195B, 196B. Junior-Senior Seminars: Studies in Christianity. Topics and instructors to be announced. Two courses.

195C, 196C. Junior-Senior Seminars: Judaic Studies. Topics and instructors to be announced. Two courses.

238. Jewish Responses to Christianity. Apologetic and polemical themes in rabbinic, medieval, and contemporary writings. One course. *Bland*

244. The Archaeology of Palestine in Hellenistic-Roman Times. The study of material and epigraphic remains as they relate to Judaism in Hellenistic-Roman times, with special emphasis on Jewish art. One course. *Meyers*

248. Theology of Karl Barth. A historical and critical study of Barth's theology. One course. *Osborn*

249. Doctrine of The Church in Contemporary Theology. One course. *Osborn*

HISTORY OF RELIGIONS

140. Religions of India. Major religious traditions of the subcontinent. Hinduism, Buddhism, Jainism, and Islam. One course. *Lawrence*

141. Religions of China and Japan. Traditional religion in China and Japan and its interaction with Sino-Japanese Buddhism. One course. *Corless*

142. Myth and Symbol. Historical and phenomenological study of religious myths and symbols, Christian and non-Christian. One course. *Partin*

- 143. Mysticism.** The mystical element in religion: Hinduism, Buddhism, Christianity, and Islam. One course. Bradley
- 145. Religious Quests of the Greco-Roman World.** Sectarian Judaism, the Mystery Cults, and Gnosticism. One course. Wintermute
- 147. Muhammad and the Qur'ān.** The Qur'ān in relation to the religious experience, life, and work of Muhammad. One course. Partin
- 148. Introduction to the Civilization of Southern Asia.** (Also listed as Interdisciplinary Course 101.) One course. Staff
- 149. Buddha and Buddhism.** A systematic introduction to the origins and spread of Buddhist thought and practice. One course. Corless
- 195D, 196D. Junior-Senior Seminars: History of Religions.** Topics and instructors to be announced. Two courses.
- 113. African Philosophy.** (Also listed as Black Studies 113.) One course. Olela
- 217. Islam in India.** History and thought of major Indian Muslims from Biruni to Wali-Ullah, with special attention to the role of Sufism. An introduction to selected Muslim scholars and saints who contributed to the interaction between Islam and Hinduism in Northern India during the second millenium A.D. One course. Lawrence
- 218. Religion in Japan.** A survey of religion in Japan, with specific emphasis on indigenization and attempts at synthesis. An approach to the meaning of the words *religious* and *secular* in the Japanese situation. One course. Corless
- 280. The History of Religions.** A study of the methodology of the history of religions, the nature of religious experience, and specific categories of religious phenomena. One course. Partin
- 282. Myth and Ritual.** Historical and phenomenological study of myth and ritual in their interrelationships in the history of religions, with particular attention to religious pilgrimage. One course. Partin
- 283. Religions of East Asia.** Major traditions of China and Japan; emphasis on Buddhism. One course.
- 284. The Religion and History of Islam.** Origins and development of the Islamic community and tradition, with particular attention to the religious element. One course. Partin
- 285. The Vedic Tradition: Compilation and Interpretation.** Indian canonical writings with emphasis on the literary stages in relation to later philosophical and religious movements. One course. Lawrence
- 286. Religious Trends in Modern India.** Leaders and movements among the religions from the coming of the Europeans to Independence. One course. Bradley
- 287. The Scriptures of Asia.** Translations of basic texts from the religious traditions of India, China, and Japan. One course. Bradley
- 288. Buddhist Thought and Practice.** A historical introduction to Buddhist thought and practice, with special attention to their interrelationship in the living religion. One course. Corless
- 289. World Religions and Social Change.** The contemporary role of Buddhism, Christianity, and Islam in Asia and Africa. One course. Bradley

RELIGION AND THE SOCIAL SCIENCES

150. Religion and Human Sexuality. A study of the current sexual revolution with the aim of examining options and determining relevant Judaic and Christian attitudes and actions. One course. *Phillips*

151. Ethical Issues in Social Change and Public Policy. American moral tradition and factors in social change in the normative analysis of public policy, with a consideration of specific ethical issues. One course. *McCullough*

154. Ethics and Modern Technology. Emerging ethical issues created by the impact of technology on the psychological, social, political, and economic life of modern man. One course. *Clark*

155. Ethical Issues in the Life Cycle. Human development viewed in religious, ethical, and psychological perspectives. One course. *McCullough*

156. Christian Marriage and the Family. Marriage and the family in American society studied from the Christian perspective. Attention will be given to the teachings of the churches and of psychologists and sociologists concerning courtship and marriage, sex, parent-child relationships, mixed marriages, and divorce. One course. *Phillips*

158. Psychology and Religion. Contributions of major psychological theories to an understanding of religion, especially Christianity. One course. *Shows*

195E, 196E. Junior-Senior Seminars: Religion and the Social Sciences. Topics and instructors to be announced. Two courses.

293. Sociological Analysis of Religion. Components of a religion (belief-systems, liturgical practices, ethical teachings, institutional structure, and modes of operation) as they function in relation to social cohesion, social conflict, and social reform. One course. *Clark*

294. Institutional Analysis of Religious Bodies. Internal structure and dynamics of religious groups. One course. *Clark*

295. Ethics and Economic Life. Historical teachings of the Christian churches in the area of economic life, contemporary norms of economic justice, and current public and private economic policies and policy-making processes. One course. *Clark*

RELIGION AND THE HUMANITIES

170. Problems of Religious Thought. Analysis of credentials for belief in God. One course. *Poteat*

174. Religion and The Poetics of Vision. The liturgical shaping of life as embodied in selected works of painting and sculpture. One course. *Poteat*

178. Existentialism. (Formerly Religion 138.) Religious roots, development, and contemporary expressions. One course. *Burford*

187. Religious Elements in Classical and European Literature. A consideration of the religious elements in representative writings. One course. *Kort*

188. Recent Literature and its Religious Implications. Religious elements in recent literature. One course. *Kort*

195F, 196F. Junior-Senior Seminars: Religion and the Humanities. Topics and instructors to be announced. Two courses.

232. Religion and Literature: Perspectives and Methods. Selected literary works as interpreted by myth or archetype critics and by theological critics. One course. Kort

233. Modern Narrative and Religious Language. Fiction of selected American, British, and continental writers of the first half of the twentieth century, with special attention to the role of religious language in their work. One course. Kort

INDEPENDENT STUDY

191, 192. Independent Study. For freshmen and sophomores with departmental approval. Two courses. Staff

193, 194. Independent Study. For juniors and seniors with departmental approval. Two courses. Staff

DEPARTMENTAL MAJOR

Major Requirements. Eight courses, which must include one course in each of at least three of the five areas of the curriculum (it is recommended that biblical studies and history of religions be two of these three areas). The 8 courses must include 2 courses at the introductory level (50, 52, and 55 in the area of biblical studies; 57 in history of religions; 59 may count in any of the three remaining areas) and a junior-senior seminar or a 200-level course. Knowledge of a foreign language is recommended.

Reserve Officers Training Program

AIR FORCE AEROSPACE STUDIES

Professor Knops, Lt. Colonel, USAF, *Chairman*: Associate Professor Lohner, Major, USAF, *Director of Undergraduate Studies*; Assistant Professor Weeks, Captain, USAF, *Supervisor of Freshman Instruction*

Eligibility Requirements. All freshmen, male or female, are eligible to enroll in the General Military Course in the Air Force ROTC. For enrollment in the Professional Officer Course, the student must have completed successfully either the General Military Course or the six weeks Field Training Course; must execute a written agreement with the government to complete the Professional Officer Course; must be sworn into the Enlisted Reserve; and he must agree to accept a commission in the United States Air Force Reserve upon graduation.

Deposit. Each student must make a deposit of \$10.00 with the Bursar's Office to ensure the return of all government property.

General Military Courses

First Year

1. Defense of the United States. A study of the causes of world conflict, the problem of United States security, and the role of the armed forces as instruments of national policy. (May not be counted to satisfy graduation requirements.) Half-course. Lohner

4. Corps Training. No course credit. Staff

Second Year

51. World Military Systems. A comparative study of free world military forces, communist military systems, and trends in the development and employment of military powers. (May not be counted to satisfy graduation requirements.) Half-course. *Lohner*

54. Corps Training. No course credit. *Staff*

Professional Officer Courses

All students selected to continue aerospace studies pursue the following courses:

First Year

101S. National Security in Contemporary American Society. An analysis of the current questions of the role and function of the professional military officer in a democratic society and the complex relationships in civil-military interactions. One course. *Lohner*

102S. National Security in Contemporary American Society. This course deals specifically with the formulation and implementation of American defense policy. One course. *Lohner*

104. Corps Training. No course credit. *Staff*

Second Year

201S. Concepts of Leadership. Principles and research of leadership, to include military law. One course. *Knops*

202S. Concepts of Management. Functions of management and their application to duties as junior officers/executives. One course. *Knops*

203. The Problems of Flight and Aerospace Sciences of Weather and Navigation. Mandatory for pilot and navigator cadets, approval of instructor for all others. Half-course. *Lohner*

204. Corps Training. No course credit. *Staff*

NAVAL SCIENCE

Professor Klause, Captain, U.S. Navy, *Chairman*; Visiting Associate Professor Banks, Commander, U.S. Navy, *Director of Undergraduate Studies*; Visiting Assistant Professors McDonnell, Lieutenant Commander, U.S. Navy; Mann, Lieutenant Commander, U.S. Navy; Acree, Major, U.S. Marine Corps; Gravatt, Lieutenant, U.S. Navy; Rivers, Lieutenant, U.S. Navy

Completion of all naval science courses listed is required for a commission. A maximum of 4 naval science courses may be offered as electives in satisfying degree requirements in Trinity College; only 2 naval sciences courses (junior or senior level) can be so offered in the School of Engineering. Fifteen hours of practical and applied leadership are required each semester.

11. Naval Orientation. Military formations, movements, commands, courtesies, and honors; and elements of unit leadership. *Mann*

12. Naval Ships Systems. Structure, elements of design, stability, control compartmentation, communications, and propulsion systems as they bear on safe operation and combat or service effectiveness. One course. *Mann*

51. Seapower and Maritime Affairs Seminar. Strategic, tactical, and diplomatic aspects of seapower. Gravatt

52. Seapower and Maritime Affairs Seminar. Strategic, tactical, and diplomatic aspects of seapower. Gravatt

125P. Naval Organization and Management. Naval lines of command and control; organization for logistics, service, and support; research on the practical application of fundamental management principles at lower echelons of Navy management structure. (Required preceptorial for NROTC students taking Management Sciences 125.) No course credit. McDonnell

126. Concepts and Analyses of Naval Tactical Systems. Detection systems, offensive and defensive capabilities, and relative motions problems. One course. Mann

126L. Naval Ship Administration Laboratory. Management and organizational concepts in shipboard command and control. McDonnell

131. Navigation. Theory, principles, and procedures of ship navigation, movements, and employment. Dead reckoning, piloting, and electronic and celestial navigation. One course. Eisenhardt, Klause, and Rivers

131L. Navigation Laboratory. Practical application of the theories and principles of navigation as presented in the lecture series. Eisenhardt, Klause, and Rivers

132. Naval Operations. Components of general naval operations, including concepts and application of tactical formations and dispositions, relative motion, maneuvering board and tactical plots, rules of the road, and naval communications. One course. Eisenhardt, Klause, and Rivers

141. Evolution of Warfare. A survey of the development of weaponry, tactics, and strategy affiliated with warfare, as exemplified by confrontations selected for detailed study through World War II. One course. Acree

151. Amphibious Operations. An examination of the development of U.S. amphibious doctrine, with emphasis on current applicability of that doctrine. Acree

Romance Languages

Professor Tetel, *Chairman*; Assistant Professor Bryan, *Director of Undergraduate Studies in French*; Assistant Professor Landeira, *Director of Undergraduate Studies in Spanish*; Associate Professor Hull, *Supervisor of Language Instruction*; Professors Cordle, Davis, Fein, Fowlie, Niess, Predmore, and Wardropper; Associate Professors Garcı-Gomez, Ripley, Stewart, and Vincent; Assistant Professors Auld, Barlow, Caserta, and Miller; Instructor Steegar

French 63-64 and Spanish 63-64 or equivalent are the prerequisites for all elective courses. Students who, by reason of foreign residence, have had special opportunities in French or Spanish must be classified by the appropriate director of undergraduate studies.

The intensive courses 181, 182 are recommended for students who wish to acquire proficiency in a second foreign language before entering graduate school.

The following courses are given in English and require no knowledge of the foreign language: French 113, 116, 151, 217.1, 228.1, 233.1, 234.1; Italian 141, 142; Spanish 152, 157; Romance Languages 124.

FRENCH

1-2. Elementary French. Understanding, speaking, reading, and writing French. Language laboratory available for recording-listening practice. Two courses. *Steegar and Staff*

63. Intermediate French. Intensive grammar review and training in reading; laboratory practice. One course. *Hull and Staff*

64. Intermediate French. Open to students who have passed French 63 or by special placement. Readings in contemporary literature; practice in composition. One course. *Staff*

76. Introductory French Conversation. Practice in everyday conversational French. Prerequisite: French 63 or equivalent. Limited to fifteen students. One course. *Staff*

100. Active French. Intensive instruction in oral and written expression. Prerequisite: French 76 or equivalent. Limited to fifteen students. One course. *Bryan and Staff*

101, 102. Introduction to French Literature. An introduction to the major writers of the French literary tradition. Selections and complete works of poetry, fiction, theater, and essay. In the first semester: Middle Ages through the eighteenth century. In the second semester: nineteenth and twentieth centuries. Lectures and discussions; short essays and tests. Conducted in French. Two courses. *Fowlie and Staff*

103S. French Literature. Topics to be announced. Fall semester. Open only to freshmen and sophomores. One course. *Staff*

104S. French Literature. Topics to be announced. Spring semester. Open only to freshmen and sophomores. One course. *Staff*

105. Explication de Textes. A study of the French method of textual analysis, with selections primarily from nineteenth and twentieth century authors. For students who have taken 91 and 92. One course. *Staff*

106S. Montaigne. A close reading of selected *Essais* aiming to integrate themes, structure, and style; frequent comparative allusions will be made to Proust, Pirandello, Malraux, and Sartre. One course. *Tetel*

107S. Perspectives in Criticism. Intensive readings leading to discovery of levels of meaning. Open only to freshmen and sophomores through the Advanced Placement Program, or by invitation of the department. One course. *Stewart*

108. Romanticism in French Literature. Lectures, readings, and class discussions of Romantic theory and of selected novelists (Especially Constant, Stendhal, and Balzac), of representative poets, such as Lamartine, Vigny, Hugo, and Duman. One course. *Niess*

109. Toward Modernism in French Poetry. An introduction to modern trends in the nineteenth century; emergence from traditional romanticism; Art for Art's Sake and the Parnassians (Gautier, Leconte de Lisle); the transition from decadence to symbolism (Baudelaire, Verlaine, Rimbaud, and Mallarmé). One course. *Barlow*

110. French Comedy in the Seventeenth and Eighteenth Centuries. The theatrical tradition of comedy and its evolution; readings from Corneille, Molière, Lesage, Marivaux, and Beaumarchais. One course. *Stewart*

111. French Drama of the Nineteenth Century. A survey of the French theatre from the Romantic period to the *Theatre libre*. One course. *Staff*

112. French Drama of the Twentieth Century. A survey of literature for the stage from 1890 to the present. One play each of Claudel, Maeterlinck, Jarry, Giraudoux, Cocteau, Ghelderode, Anouilh, Sartre, Camus, Genet, Ionesco, Beckett, Pinget, Vian, Arrabal. One course. *Cordle and Staff*

113. Society and the Novel under the "Ancien Regime." The novel as an expression of social consciousness. Readings include Prevost, Montesquieu, Marivaux, Diderot, Laclos. No knowledge of French required. One course. *Stewart*

114S. The Sixteenth Century. An introduction to the spirit of the French Renaissance as reflected in the literature of the age of Rabelais and Montaigne, Ronsard, and Du Bellay. One course. *Vincent and Tetel*

115. Realism and Naturalism in French Literature. Flaubert, Maupassant, and Zola. One course. *Niess*

116. The Nineteenth Century Novel in Translation. Stendhal, Balzac, Flaubert, and Zola. One course. *Niess*

117S. Masterpieces of French Medieval Literature. Lyric poetry, epic romance, and theater from beginning to the middle French period. One course. *Ripley*

119. French Drama of the Seventeenth Century. The plays of Corneille, Racine, and Molière are used to explore tragedy and comedy. One course. *Auld*

120. Seventeenth Century Poetry, Novel, and Rhetoric. Analysis of form and thought in selected works of La Fontaine, Mme. de La Fayette, Pascal, La Rochefoucauld, and La Bruyère. One course. *Auld*

121. The French Enlightenment. Religion, politics, and philosophic and literary ideas of eighteenth century France, Montesquieu, Voltaire, Rousseau, and others. One course. *Stewart*

122. The Early French Novel. The rise of the novel as a literary form up to the revolution. Readings from d'Urfé, Sacron, Furetière, Montesquieu, Prévost, Marivaux, Diderot, Mme de La Fayette, Rousseau, Laclos. One course. *Stewart*

126. French Phonetics. Sounds, rhythm, intonation. Individual practice in language laboratory. Readings in phonetic theory. One course. *Hull and Steegar*

127S. Advanced Composition and Conversation. A systematic review of grammar; pronunciation and diction; oral and written reports. Prerequisite: French 97 or consent of the instructor. One course. *Bryan*

129. French Civilization. Contemporary France as seen through its history, institutions, customs, and arts. Reading and discussion in French. One course. *Staff*

132. French Poetry of the Twentieth Century. The symbolist heritage and surrealism. One course. *Barlow*

133, 134. Contemporary French Life and Thought. Major writers of the twentieth century and their historical and cultural circumstances. First semester: Claudel, Gide, Valéry, Proust, Apollinaire, Mauriac, Romain, Coc-

teau. Second semester: Giono, Breton, Aragon, Malraux, Sartre, Beckett, Camus, Robbe-Grillet. Two courses. Cordle

141S. French Literature. Topic to be announced. Open to juniors and seniors. One course. *Staff*

142S. French Literature. Topic to be announced. Open to juniors and seniors. One course. *Staff*

150T. Tutorial in Composition. Half-course. *Hull and Staff*

151. Theory and Form of Tragedy. A study of major theorists and an analysis of principal Greek, French, and English tragedies. (Also Comparative Literature 151.) One course. *Fowlie*

181, 182. Intensive French. First semester: an introduction to the language. Prerequisite: the second year of another foreign language or permission of the instructor. Second semester: readings in modern literature: analysis and discussion. Prerequisite: French 181 or permission of the instructor. Two courses. *Ripley*

191, 192. Independent Study. Directed reading and research. Open only to highly qualified juniors by permission of the department. Two courses.

193, 194. Independent Study. Directed reading and research. Open only to highly qualified seniors by permission of the department. Two courses.

209. Advanced Composition and Syntax. Comparative English-French stylistics. Practice in controlled and free-writing. One course. *Hull*

210. The Structure of French. Modern French phonology, morphology, and syntax. Readings in current linguistic theory. One course. *Hull*

213. French Literature of the Seventeenth Century. Its initial phase. Readings in the major literary works to the middle of the century. One course. *Auld*

214. French Literature of the Seventeenth Century. Its "classical" phase. Readings in the major literary works from the middle to the end of the century. One course. *Auld*

217. French Symbolism. Poetry and theories of Baudelaire, Mallarmé, and Rimbaud; Decadence; Lautréamont and Laforgue. One course. *Fowlie*

219. Old French Literature. An introduction to the reading of medieval French literary texts. One course. *Vincent*

220. French Pre-Romantic and Romantic Poetry. Chénier, Vigny, Lamartine, Musset, Hugo, and Nerval. One course. *Niess*

221, 222. The Nineteenth Century French Novel. First semester: romanticism and romantic realism, studied especially in the works of Chateaubriand, Stendhal, and Balzac. Second semester: realism and naturalism, with special emphasis on Flaubert and Zola. One course. *Niess*

223. French Literary Criticism. A history of critical theory in France and a study of the major critics from the Renaissance to today. One course. *Fowlie*

224. History of the French Language. The evolution of French from Latin to its present form; internal developments and external influences. One course. *Hull*

225. French Prose of the Sixteenth Century. Readings principally from Rabelais, Marguerite de Navarre and Montaigne. One course. *Tetel*

226. French poetry of the Sixteenth Century. A critical appraisal of Villon, Marot, the Ecole Lyonnaise, the Pléiade, and the "Baroque Poets." One course. Tetel

228. French Poetry of the Twentieth Century. In the wake of symbolism: Valéry and Claudel; poetry as ritual: Péguy; Apollinaire and surrealist poetry; the contemporary movement: Michaux, Char, Saint-John Perse. One course. Fowlie

233. Contemporary French Theatre. A study of dramatic theory; the art of the leading directors; and the major texts of Claudel, Giraudoux, Anouilh, Sartre, Beckett, Ionesco, and Genet. One course. Fowlie

234. Proust. A study of *A la recherche du temps perdu*. The thematic structure and the aesthetics of the work. One course. Fowlie

241, 242. French Literature of the Eighteenth Century. First semester: the Enlightenment, including Montesquieu, Voltaire, Diderot, Rousseau, and the *Encyclopédie*. Second semester: the development of literary forms, with emphasis on the theater and the novel. Two courses. Stewart

245. French Literature of the Twentieth Century: to 1935. Emphasis on Gide, Mauriac, and Malraux. One course. Cordle

246. French Literature of the Twentieth Century: after 1935. Emphasis on Sartre, Camus, and the *nouveau roman*. One course. Cordle

ITALIAN

1-2. Elementary Italian. Understanding, speaking, reading, and writing Italian. Language laboratory available for recording-listening practice. Two courses. Caserta

63. Intermediate Italian. Intensive grammar review and training in reading; laboratory practice. One course. Caserta and Staff

64. Intermediate Italian. Open to students who have passed Italian 63 or by special placement. Readings in contemporary literature; practice in composition. One course. Caserta and Staff

100. Spoken Italian. Intensive instruction in contemporary Italian using selected topics and readings to build vocabulary and to provide practice in structural patterns. One course. Caserta

129. Modern Italy. Political, social, economic, and cultural problems in Italian history from 1861 to the present day. One course. Caserta

141, 142. Masterworks of Italian Literature in English Translation. First semester: from the origins to the Baroque. Second semester: Ottocento and Novecento. Two courses. Caserta

181, 182. Italian. Intensive introduction to the language. Modern readings. Completion of the second year of another foreign language will normally be required as a prerequisite. Two courses. Caserta

183, 184. Readings in Italian Literature. Historical and critical analysis. First semester: Dante, Petrarch, Boccaccio, and the Humanists. Second semester: Foscolo, Manzoni, Leopardi, and Verga. Conducted in Italian. Two courses. Caserta

191, 192. Independent Study. Directed reading and research for juniors. Two courses. Staff

193, 194. Independent Study. Directed reading and research for seniors. Two courses. *Staff*

283. Italian Novel of the Novecento. Representative novelists from Svevo to the most recent writers. One course. *Caserta*

284. Dante. *La Vita Nuova* and a close reading of the *Inferno*. The course will be conducted in English. Reading in Italian or English. One course. *Fowlie*

288. The Renaissance. Petrarch, Boccaccio, and Ariosto. One course. *Tetel*

PORTUGUESE

181. Brazilian Portuguese. An intensive introduction to the language. Prerequisite: second year of another foreign language or permission of the instructor. One course. *Miller*

182. Contemporary Brazilian Theater. Authors studied include Jorge Andrade, Ariano Suassuna, and Dias Gomes. Prerequisite: Portuguese 181 or permission of the instructor. One course. *Miller*

183. Readings in Modern Brazilian Literature. Prerequisite: Portuguese 182 or permission of the instructor. One course. *Miller*

184. Literature of the Explorations: Asia, Africa, Latin America. Prerequisite: Portuguese 182 or permission of the instructor. One course. *Miller*

185, 186. Conversation. Practice in spoken Brazilian Portuguese. Prerequisite: Portuguese 182 or permission of the instructor. Two courses. *Miller*

SPANISH

1-2. Elementary Spanish. Understanding, speaking, reading, and writing Spanish. Language laboratory available for recording-listening practice. Two courses. *Miller and Staff*

63. Intermediate Spanish. Intensive grammar review and training reading, laboratory practice. One course. *Davis and Staff*

64. Intermediate Spanish. Open to students who have passed Spanish 63 or by special placement. Readings in contemporary literature; practice in composition. One course. *Davis and Staff*

76. Introductory Spanish Conversation. Practice in everyday conversational Spanish. Prerequisite: Spanish 63 or equivalent. Limited to fifteen students. One course. *Staff*

100. Active Spanish. Intensive instruction in oral and written expression. Prerequisite: Spanish 76 or equivalent. Limited to fifteen students. One course. *Staff*

101, 102. Introduction to Spanish Literature. An introduction to the major writers of the Spanish literary tradition. Selections and complete works of poetry, fiction, theater, and essay. First semester: Middle Ages through the eighteenth century. Second semester: nineteenth and twentieth centuries. Conducted in Spanish. Prerequisite: Spanish 63-64 or equivalent. Two courses. *Staff*

103S. Spanish Literature. Topics to be announced. Fall semester. Open only to freshmen and sophomores. One course. *Staff*

- 104S. Spanish Literature.** Topics to be announced. Spring semester. Open only to freshmen and sophomores. One course. *Staff*
- 117S. Masterpieces of Spanish Medieval Literature.** Selected works of the Medieval period. One course. *Garci-Gómez*
- 141S. Spanish Literature.** Topics to be announced. Fall semester. Open to juniors and seniors. One course. *Staff*
- 142S. Spanish Literature.** Topics to be announced. Spring semester. Open to juniors and seniors. One course. *Staff*
- 150T. Tutorial in Composition and Syntax.** Half-course. *Staff*
- 152. Issues and Problems in Twentieth Century Spanish America.** Revolution, national identity, myth and reality of *caudilloism*, imperialism, ideology left and right, and nationalism. Readings in English or Spanish. (Also listed as History 152.) One course. *Fein and TePaske (History)*
- 155. Spanish American Short Fiction.** Novelettes and short stories of the twentieth century. One course. *Fein*
- 156. The Spanish American Novel.** Masterworks of the nineteenth and twentieth century. One course. *Fein*
- 157. Latin American Literature in Translation.** Fictional and poetic works of the last thirty years that have made an impact on world literature. One course. *Fein*
- 161. Spanish Literature of the Renaissance and the Baroque.** A study of selected works of the sixteenth and seventeenth centuries with attention to their reflection of social, religious, and political ideas. One course. *Miller and Wardropper*
- 162. Spanish Romanticism.** A study of the romantic spirit in modern Spanish literature. One course. *Davis*
- 163. The Generation of 1898.** Special emphasis on the novel and essay. The precursors: "Clarín" and Galdós; Unamuno, Baroja, "Azorín," Valle-Inclán; influence on the next generations; Pérez de Ayala and Ortega y Gasset. One course. *Predmore and Landeira*
- 164. Topics of Spanish Civilization.** A humanistic study of Spain as a nation through its history, culture, people, and institutions. One course. *Landeira*
- 165S. Analysis of Great Spanish Authors.** A close textual study of a few literary texts with some considerations of methods of literary criticism. The course is designed to give the student insight into various ways of interpreting and understanding literary works so that his experience of literature in general may be enriched. One course. *Wardropper*
- 166. Spanish Realism.** The growth of realism in Spanish literature of the nineteenth century. One course. *Davis*
- 167. Golden Age Literature: Cervantes.** Emphasis on *Quijote*. One course. *Predmore*
- 169. Literature of Contemporary Spain.** Trends in the post-Civil War novel, theater, and poetry. One course. *Landeira*
- 170. The Picaresque Novel.** One course. *Garci-Gómez*
- 176S. Advanced Conversation.** This course is designed to develop facility of expression through constant drill on vocabulary and conversa-

tional idiom. Time will be devoted to a review of the essentials of Spanish syntax. Prerequisite: Spanish 100 or permission of the instructor. One course. *Landeira and Staff*

177. Advanced Composition and Syntax. Fundamental difficulties in the language; practice in writing idiomatic Spanish; exercises in translation from English to Spanish. For students who have a satisfactory command of Spanish grammar and fair conversational ability. Prerequisite: Spanish 176 or permission. One course. *Staff*

181. Spanish. An intensive introduction to the language. Modern readings. Prerequisite: second year of another foreign language or permission of the instructor. One course. *Miller*

182. Readings in Spanish American Literature. Prerequisite: Spanish 181 or permission of the instructor. One course. *Miller*

191, 192. Independent Study. Directed reading and research. Open only to highly qualified juniors by permission of the department. Two courses.

193, 194. Independent Study. Directed reading and research. Open only to highly qualified seniors by permission of the department. Two courses.

251. The Origins of the Spanish Novel. A critical study, based on close readings and discussions, of selected examples of the principal genres of the early novel: *Amadis de Gaula*, Diego de San Pedro's *La carcel de amor*, the *Abencerraje*, the *Lazarillo*, Montemayor's *Diana*. One course. *Wardropper*

252S. Spanish Lyric Poetry Before 1700. A critical study, based on close reading and discussion, of selected poems of the Middle Ages, Renaissance, and Baroque. Special emphasis on the *Razon de amor*, la poesia de tipo tradicional, and Santillana; on Garcilaso, San Juan de la Cruz, Fray Luis de Leon, and Herrera; on Gongora and Quevedo. One course. *Wardropper*

253. The Origins of the Spanish Theatre. A study of the evolution of the Spanish theater from the *Auto de los Reyes Magos* (twelfth century) to the end of the sixteenth century. The idea of the theater as dramatic poetry will be stressed; close reading of texts by Gomez Manrique, Encina, Gil Vicente, Torres, Naharro, Lope de Rueda, Juan de la Cueva. One course. *Wardropper*

255, 256. Modern and Contemporary Latin American Literature. First semester: the coming of age of Latin American poetry in the nineteenth and twentieth centuries. Second semester: trends in twentieth century Latin American fiction. Two courses. *Fein*

257. Old Spanish Language. The historical development of the language. Illustrative readings. One course. *Davis*

258. Old Spanish Literature. An introduction to medieval Spanish literary texts. One course. *Davis*

259. Spanish Phonetics. A phonemic approach to the study of Spanish sounds. Remedial pronunciation drills with special emphasis on rhythm and intonation. Readings in current studies of phonology. Prerequisite: Spanish 176 or permission. One course. *Predmore*

260. Origins and Development of Spanish Romanticism. Close reading and commentary of texts by representative authors, including Espronceda, Rivas, Zorrilla, Bécquer, and Rosalía de Castro, with a stress on drama and poetry. One course. *Landeira*

261. Nineteenth Century Novel. A study of literary trends in the last half of the nineteenth century. Readings will be selected from the novels of Valera, Pereda, Galdos, Pardo Bazan, Blasco Ibañez, and their contemporaries. One course. *Davis*

262. Galdos. Works selected from the *Novelas contemporaneas*, the *Episodios nacionales*, and his drama. One course. *Davis*

265. Golden Age Literature: Cervantes. The life and thought of Cervantes with special emphasis on his *Quijote*. One course. *Predmore and Wardropper*

266. Golden Age Literature: The Drama. A study of the chief Spanish dramatists of the seventeenth century with readings of representative plays of this period. One course. *Wardropper*

275, 276. Contemporary Spanish Literature. First semester: the essay and lyric poetry. Revision of national values and literary expression in the twentieth century, with particular reference to the crisis of 1898 and to the enrichment of the Spanish tradition through extra-peninsular influences. Second semester: tradition and innovation in the twentieth century Spanish novel with emphasis on the novels of Unamuno, Baroja, Valle Inclan, and Perez de Ayala. Two courses. *Predmore*

ROMANCE LANGUAGES

124. Continental Humanism. Readings in English from Boccaccio, Petrarch, Rabelais, Montaigne, Rojas, Cervantes, and Erasmus. One course. *Tetel*

218. The Teaching of Romance Languages. Evaluation of objectives and methods; a study of the practical problems involved in teaching these languages on the elementary, secondary, and college level; analysis of textbooks, special foreign language programs, audiovisual aids; critical examination of modern techniques in written and oral testing. One course. *Hull*

DEPARTMENTAL MAJOR

Prerequisite. French or Spanish 64 or proficiency.

Major Requirements. Literature major: a total of 8 courses (Above 76), no fewer than 5 literature courses, and no fewer than 2 language courses. The literature courses must represent at least three of the six historical periods (medieval, Renaissance, seventeenth, eighteenth, nineteenth, twentieth centuries for French; and medieval, Renaissance, seventeenth, eighteenth, nineteenth, twentieth, and Spanish American for Spanish).

Language Major. A total of 8 courses, no fewer than 4 language courses (for French, from 100, 126, 127, 150T, 209, 210, 224; for Spanish, from 100, 150T, 176, 177, 257, 259) and no fewer than 2 literature courses.

In order to give perspective to a student's program, majors in Romance languages will normally select, with the approval of the major adviser, appropriate courses from such fields as: (1) other languages and literature; (2) history; (3) philosophy; (4) appreciation courses in music and art; and (5) linguistics.

Russian

For courses in Russian, see *Slavic Languages and Literatures*.

Slavic Languages and Literatures

Associate Professor Krynski, Chairman: Assistant Professor H. Pavlov, Director of Undergraduate Studies and Supervisor of Language Instruction; Associate Professors Jezierski and M. Pavlov; Assistant Professor Shonek

1-2. Elementary Russian. Introduction to understanding, speaking, reading, and writing. Audiolingual techniques are combined with required recording-listening practice in the language laboratory. Two courses. Staff

63-64. Intermediate Russian. Intensive classroom and laboratory practice in spoken and written patterns. Reading in contemporary literature. Prerequisite: Russian 1-2, or two years of high school Russian. Two courses. Staff

66. Russian Conversation. For the development of fluency in spoken Russian through the acquisition and retention of an extensive vocabulary. Discussions will deal with topics of contemporary interest. May be taken concurrently with or upon completion of Russian 64 or equivalent. One course. Staff

105. The Russian Theatre and Drama. Russian drama from its beginnings to the present. Readings in English or Russian. One course. Jezierski

119. Introduction to Russian Literature of the Nineteenth Century. Conducted in Russian. Prerequisite: Russian 63-64 or equivalent. One course. M. Pavlov

120. Introduction to Russian Literature of the Twentieth Century. Conducted in Russian. Prerequisite: Russian 119. One course. M. Pavlov

119P, 120P. Preceptorial. Elective preceptorials for students enrolled in Russian 119, 120. M. Pavlov

124. Masters of Russian Short Fiction. Includes Pushkin, Gogol, Tolstoy, Dostoevsky, Chekhov, and Babel. Readings in English. One course. Jezierski

179. Twentieth Century Russian Prose. Modern prose in the original. Textual analysis of Russian prose since the turn of the century. Prerequisite: Russian 1-2, 63-64, or permission of instructor. One course. Krynski

184. Soviet Writers of the 1960's. Poems, prose, and plays by Yevtushenko, Voznesensky, Sinyavsky-Tertz, Daniel-Arzhak, Solzhenitsyn, and others. Readings in English. Qualified students may do some readings in Russian. One course. Krynski

185. Vladimir Nabokov. The Russian and English novels, short fiction, plays, poetry, and criticism of Vladimir Nabokov. Readings in English. Qualified students may do some readings in Russian. One course. Jezierski

186. Non-Russian Slavic Literatures. Selected Polish, Czech, Serbian, Croatian, and Bulgarian authors, from the beginnings to recent times. Readings in English. One course. Jezierski

191, 192. Independent Study. Directed reading and research. Open only to highly qualified students by permission of the department. Two courses. Staff

193, 194. Independent Study. Directed reading and research for qualified seniors. Prerequisite: permission of the department. Two courses. M. Pavlov and Staff

201, 202. The Novelists of Nineteenth Century Russia. Development of the

Russian novel against the European background, with emphasis on Dostoevsky and Tolstoy. Extensive readings in English or Russian. Two courses. Krynski

205. The Structure of Polish in Relation to Russian. Comparative and contrastive study of the two major Slavic languages. Emphasis on preparing students to read Polish literary texts. One course. Krynski

206. Readings in Contemporary Polish Prose in the Original. Stylistic analysis of aphoristic prose by Stanislaw Lec, philosophical allegories by Leszek Kolakowski and short stories by Slawomir Mrozek and Marek Hlasko. One course. Krynski

207. Soviet Literature and Culture. Literature since 1917. Readings in English or Russian from major works of prose, poetry, and drama. One course. Jezierski

207P. Preceptorial. Elective preceptorial for students enrolled in Slavic Languages and Literatures 207. Jezierski

212S. Pushkin. A survey of his life and works, with attention given to his role as a precursor of modern Russian literature. Readings in English or Russian. Prerequisite: Russian 101 or the instructor's permission. One course. Krynski

213. The Slavs: Literature and Culture, 1918-1939. Study of the culture of the Soviet Union, Poland, and Czechoslovakia using representative literary masterpieces. Comparison with Western European trends. Readings in English. Prerequisite: permission of instructor. One course. Krynski

213P. Preceptorial. Elective preceptorial for students enrolled in Slavic Languages and Literatures 213. Krynski

214. The Poles: Literature and Culture, 1940-1970. Study of the culture of Poland using representative literary masterpieces. The international context with emphasis on Western literary *avant-garde* and Soviet political influences. Special attention to Jewish themes. Readings in English. Prerequisite: permission of instructor. One course. Krynski

214P. Preceptorial. Elective preceptorial for students enrolled in Slavic Languages and Literatures 214. Krynski

215, 216. Advanced Composition and Syntax. Morphological and syntactic structure of modern Russian compositions based on literary topics. Prerequisite: Russian 119, 120 or permission of instructor. Two courses. M. Pavlov

225S. Leo Tolstoy. Life and works. One course. Jezierski

227. Gogol. Life and works; short stories, dramas, and the novel. Readings in English, but students knowing Russian will do part of the reading in that language. One course. Jezierski

230. Chekhov and the Russian Prose of the Turn of the Century. Structural analysis of Chekhov's short stories and plays against the background of contemporary Realist, Impressionist, Symbolist, and Decadent trends in Russian prose. One course. Krynski

230P. Preceptorial. Elective preceptorial for students enrolled in Slavic Languages and Literatures 230. Krynski

232. Fyodor Dostoevsky. The major fiction of a leading nineteenth century Russian writer. One course. Jezierski

DEPARTMENTAL MAJOR

Prerequisites. Russian 1-2 and 63-64, or equivalent.

Major Requirements. A minimum of 8 courses in the department. All majors must take the following 4 obligatory courses: Russian 91, 92, 215, 216, plus 4 courses in literature, 2 of which must be selected from the 200-level courses.

Students contemplating graduate work in the Slavic field may elect a more intensive program consisting of 10 courses. A knowledge in depth of Russian literature, or some knowledge of Polish language and/or literature, will facilitate admission to graduate school and subsequent study in the field.

Sociology

Professor Kerckhoff, *Chairman*; Assistant Professor House, *Director of Undergraduate Studies*; Professors Back, Maddox, McKinney, Myers, Palmore Preiss, Roy, Smith, and Tiryakian; Associate Professors Simpson and Wilson; Assistant Professors Brehm, Hirschman, and Schneller; Instructor Evers

Sociology 91 or special permission of the instructor or the Director of Undergraduate Studies is a prerequisite for all sociology courses at the 200-level.

To provide a variety of educational experiences for the beginning student of sociology, the introductory course, *Introduction to Sociology: Concepts and Procedures*, has a variety of structures. In each, however, students learn basic approaches of sociology to social reality and some of the problems involved in observing, describing, and analyzing facets of social life.

91. Sections of limited enrollment (maximum thirty-five). One course. Staff

91D. Two lectures and one discussion section (no more than twenty students per section). One course.

91S. Taught as a seminar, limited enrollment. One course. Staff

91X. Taught as a seminar, limited enrollment, open to invited freshmen only. Simpson

132. Introduction to Sociological Research. Principles and procedures of sociological research. One course. Staff

136. Sociology of Modern Africa. An introduction to the modernization of sub-Saharan Africa. Primary emphasis given to the nature and formation of colonial society, as well as to the process of decolonization and its sources. One course. Tiryakian

139. Comparative Social Structure. Comparison of social phenomena in two or more societies. Sociological propositions, tested with American data and data from other societies. One course. Hirschman and Wilson

141. Population and Ecology. Relation of fertility, mortality, and migration to social development, population composition, and distribution. One course. Evers and Myers

142. The Sociology of Mass Communication. An analysis of the role of radio, the press, magazines, movies, and television in modern societies. An examination of the selective audiences, content characteristics, controlling elements, and organizational structure of the various media of mass communication. One course. Smith

143. Deviant Social Behavior. Analysis of deviant behavioral systems (illness, crime, delinquency) in terms of precipitating social factors, patterns and goals, remedial and counteracting controls. One course. *Preiss*

144. Political Sociology. Politics as social behavior involving change in institutions and structures; current national and local issues. One course. *House and Preiss*

145. Urban Sociology. Historical, demographic, and ecological materials are used to study urban society with respect to its institutions, interaction patterns, differentiation, integration disorganization, and decentralization. One course. *Myers and Smith*

146. Industry and Society. A study of industrial institutions in their interrelationships with other forms of social behavior in the broad cultural setting of Western civilization. Attention will center upon analysis of specific social problems resulting from the impact of industrial change. One course. *Roy*

147. The Black in the City. A comparative analysis of the situations and experiences of Black people in urban settings with attention to class, caste, ethnic, social, and racial factors. One course. *Stoff*

150. The American Family. The American family as an institutionalized group and its relationship with other institutions; the social psychology of family relations; variations by social class and ethnic group. One course. *Kerckhoff and Roy*

151. Sociology of Religion. The religious factor and the social factor in religion. Major sociological theories and selected research studies. One course. *Tiryokion and Wilson*

154S. The Sociology of the Arts. An analysis of the social relations of the world of the arts (painting and sculpture, music, and literature) with emphasis upon creative artists, art publics, art organizations, and art works as they function in their social-cultural milieu. One course. *Back*

155. Sociology of Work. Study of the social organizations of work activities, of the human experiences and group relationships involved. Special focus on management-employee conflict and cooperation. One course. *Roy*

156. The Contemporary Woman: History and Prospects. For description see Interdisciplinary Course 156.

159. Black and White Relations in America. The history and changing nature of interaction between Blacks and Whites, including the sources and consequences of discrimination, integration, and Black power. One course. *Polmore*

172. Collective Behavior. Rumor and contagion as general processes; collective expression such as riots, protests, and behavior in disaster. Focus on contemporary Western society. One course. *Kerckhoff*

173. Social Movements. Social movements as agents of change. Structure and development of protest groups. One course. *Wilson*

182. Introduction to Sociological Theory. Images and theories developed to understand social behavior; a survey of current issues. One course. *Wilson*

185, 186. Junior Tutorial. Prerequisites: Sociology 91 (or 91D or 91S) and permission of the Director of Undergraduate Studies. Half-course each semester course. *Stoff*

195S, 196S, 197S, 198S. Senior Seminar in Special Topics. Four courses.
Staff

225. Medical Sociology. Current issues in the organization, development, and the utilization of resources for health care. One course. *Maddox*

241. Social Stratification. The nature of hierarchical and vertical differentiation for the economic, political, and prestige structures in modern societies. The interrelationship of class, status, and power strata and their influence on social institutions, personality structure, and group and individual behavior. The transmission of inequality from one generation to the next. One course. *Mason and Roy*

242. The Sociology of Occupations and Professions. The social significance of work. Analysis of forces changing the contemporary occupational structure, typical career patterns of professions and occupations, and the social organization of occupational groups. One course. *Roy and Simpson*

243. Population Dynamics and Social Change. Social scientific aspects of the determinants and consequences of population trends both national and international. One course. *Myers*

251. The Sociology of Modernization. Theories and perspectives on the nature of modernization and modernity in Western and non-Western countries. One course. *Hirschman and Tiryakian*

253. Social Institutions. The study of particular institutions and the social movements out of which they developed, with emphasis on the development of general propositions concerning the nature, function, and importance of institutions in society. One course. *Staff*

255. Race and Culture. A comparative study of race relations in world perspective developed around such themes as race and personal identity, the geography and ecology of race relations, the idea of race, and race conflict. One course. *Hirschman*

259. Religion and Social Change. The role of religion in significant social changes in Western and non-Western societies; noninstitutional phenomena (charisma, prophecy, messianism, revivals, glossolalia). Prerequisite: either Anthropology 264, Sociology 151, or the equivalent. One course. *Tiryakian and Wilson*

272. The Socialization Process. Mechanisms and variations in socialization by position in the social structure (class, caste, urban-rural); contributions made by various socialization agencies (family, school, peer groups mass media) in Western society. One course. *Kerckhoff*

275. Social Attitudes and Individual Behavior. Such issues as the following are considered: the importance of symbolic interaction, the development of the "Self," the social structuring of the socialization process, individual movement within the social structure, and the importance of membership groups and reference groups. One course. *Back and House*

278S. Social Structure and the Life Cycle. A study of the relationship between age as a social characteristic and social interaction, with particular reference to adolescence and old age. One course. *Maddox*

295. Methodology in Sociology. Considerations of the nature of scientific method, as well as alternative paths to knowledge, as they apply to sociology. Conceptualization, hypothesis formation, and definition. The research process as a decision-making situation both on the general level of

research design and the specific level of special techniques. The process and logic of data analysis. Relations of theory and research are stressed. One course. *Smith*

297. Statistical Analysis in Sociology. Such techniques as zero and higher order linear and curvilinear correlation, partial correlation, analysis of variance and covariance and factorial design are studied. When possible, analogous nonparametric techniques are also considered. Prerequisite: permission of the instructor. One course. *Brehm*

298S, 299S. Seminar in Selected Topics. Selected substantive, theoretical, or methodological topics. Two courses. *Staff*

DEPARTMENTAL MAJOR

Prerequisite. Sociology 91.

Major Requirements. Seven courses in the department above 91, including Sociology 132 and either one 200-level course or one senior seminar.

A sociology major normally takes at least 4 related courses in one of the following departments: Anthropology, Economics, Education, History, Mathematics, Political Science, or Psychology.

Statistics

Statistics courses which are offered in several departments at Duke are classified according to function (Tracks) and level as follows: Track 1 includes statistical inference courses for nonstatisticians; Track 2, statistical inference courses for statisticians; Track 3, stochastic processes courses and Track 4, stochastic communications theory courses. Within each track, courses are classified by level according to the amount of prerequisite statistical knowledge needed. First-level Track 1 courses, which are basic statistics courses for nonstatisticians, cover a certain core curriculum and have no formal statistical prerequisites. For further information on the statistics courses at Duke, see mimeographed material, *Statistics at Duke*, which is available on request from the Department of Mathematics.

University Courses

University courses are offered by senior named professors, as electives for juniors and seniors, in a form free from ordinary class restrictives.

199.1. Comparative Politics: Western Europe. One course. *Cole*

Zoology

Professor Fluke, *Chairman*; Associate Professor Ward, *Director of Undergraduate Studies*; Professors Bailey, Bookhout, Costlow, Gillham, Gregg, Klopfer, Livingstone, Nicklas, Schmidt-Nielsen, Tucker, and K. Wilbur; Associate Professors Barber, Vogel, and Wainwright; Adjunct Associate Professor Schmidt-Koenig; Assistant Professors Bergeron, Forward, Lundberg, McClay, Sutherland, and H. Wilbur; Instructor Colacino

See *Biology* for listing of introductory courses.

The L suffix on a zoology course number indicates that the course includes a laboratory.

In addition to those courses bearing the S suffix, the following zoology courses also fulfill the seminar-type learning experience: 103L, 120L, 173L, 180L, 186L, 201L, 204L, 216L, 218L, 224L, 238L, 242L, 245L, 258L, 286L.

95S, 96S. Undergraduate Seminars. One course maximum except with permission of the Director of Undergraduate Studies. *Staff*

103L. Principles of Ecology. Physical, chemical, and biological processes that determine the distribution and abundance of animals, emphasizing population dynamics, species interactions, biogeography, nutrient cycling, and energy flow through food webs. Prerequisites: college biology and Mathematics 31. Lectures, field and laboratory exercises, and student talks. One course. *H. Wilbur and Livingstone*

108L. Developmental and Comparative Anatomy of Vertebrates. Lectures and laboratory on the embryology, anatomy, and evolution of vertebrate organ systems. Not open to students who have had the courses previously numbered Zoology 53 or 56. Prerequisite: college biology. One course. *Lundberg*

114L. Introduction to Biological Oceanography. Physical, chemical, and biological processes of the oceans, emphasizing special adaptations for life in the sea and factors controlling distribution and abundance of organisms. Not open to students who have had Geology 53 or Botany 53. Prerequisite: college biology. (Given at Beaufort.) One and one-half courses. *Staff*

117. Heredity and Society. An introduction to genetics, with emphasis on the effects of environment and heredity upon the individual and population. A student may not receive credit for both Zoology 117 and 180 and the course previously numbered Zoology 71. Prerequisite: college biology or consent of the instructor. One course. *Ward*

120L. Ornithology. Lectures, laboratory, and field trips dealing with the classification, adaptations, and natural history of birds. Prerequisite: college biology; Zoology 108 is recommended. One course. *Bailey*

150L. Physiology of Marine Organisms. Comparative studies including special ecological and behavioral adaptations. Lectures and laboratories. A student may not receive credit for both Zoology 150L and 250L. Prerequisites: college biology and chemistry; consent of instructor and director of undergraduate studies of student's major department. (Given at Beaufort.) One course. *Forward*

151L. Principles of Physiology. An introductory survey. Prerequisites: college biology and a year of college chemistry. One course. *Tucker*

160. Principles of Cell Biology. Structure and function of organelles, metabolism, and regulatory mechanisms. Prerequisites: college biology and chemistry. One course. *McClay*

160L. Principles of Cell Biology. Same as 160 with laboratory included. One course. *McClay*

169L. The Marine Environment. For description see Marine Sciences.

173L. Tutorial in Animal Diversity. Comparative functional morphology of animals of major phyla. Lectures, laboratories, and tutorials (essays and oral reports). Not open to students who have had Zoology 174, 175, or 275. Prerequisite: consent of instructor. One course. *Wainwright*

174L. Animal Diversity. Same as 173L except lectures and laboratories

only. Not open to students who have had Zoology 173, 175, or 275. Prerequisite: college biology. One course. *Wainwright*

175L. Invertebrate Zoology. Lectures, readings, and laboratory dealing with free-living and parasitic invertebrates. Field trips to freshwater and marine habitats. Not open to students who have had Zoology 173, 174, or 274. Prerequisite: college biology. (Also listed as Zoology 275L.) One course. *Bookhout*

180. Principles of Genetics. Structure and properties of genes and chromosomes, and evolution of genetic systems. (Also listed at Botany 180, Botany 280, and Zoology 280.) Prerequisites: introductory courses in biology, chemistry, and mathematics, or equivalent. One course. *Boynton (Botany), Gillham, and Others of the University Program in Genetics*

180L. Principles of Genetics. Same as 180 with laboratory included. One course. *Boynton (Botany), Gillham, and Others of the University Program in Genetics*

186. Evolution. Processes of adaptation and evolution in individuals, populations, and genetic systems. (Also listed as Botany 186, Zoology 286, and under the University Program in Genetics.) Not open to students who have had courses previously numbered Zoology 109 or Botany 240. Prerequisite: a course in genetics or consent of the instructor. One course. *Antonovics (Botany), Lundberg, and H. Wilbur*

186L. Evolution. Same as 186 with laboratory included. One course. *Antonovics (Botany), Lundberg, and H. Wilbur*

191T, 192T. Independent Study. For senior and junior majors with permission of the Director of Undergraduate Studies and the supervising instructor. Three courses maximum. *Staff*

195S, 196S. Undergraduate Seminars. Two courses maximum except with permission of the Director of Undergraduate Studies. *Staff*

197S, 198S. Undergraduate Seminars. Do not satisfy major or distributional requirements. One course maximum except with permission of the Director of Undergraduate Studies.

201S. Animal Behavior. Emphasis on recent physiological and developmental studies. Prerequisites: physiology, genetics, and evolution, or consent of instructor. Usually taught on tutorial basis. One course. *Klopfer*

201L. Animal Behavior. Same course as 201S except laboratory included. One course. *Klopfer*

202L. Introduction to Comparative Behavior. Behavior as revealed by physiological, evolutionary, and ecological studies with primary emphasis on marine groups. Lecture and laboratory. Prerequisite: one course in physiology. (Given at Beaufort.) One and one-half courses. *Salmon (Visiting Summer Faculty)*

203L. Marine Ecology. Class discussion on selected papers and field projects; practice in scientific writing and use of computers in ecology. Prerequisites: a course in general zoology, invertebrate zoology, or an appropriate equivalent, and a year of mathematics; some knowledge of statistics will be helpful. (Given at Beaufort.) One and one-half courses. *Sutherland*

204L. Population and Community Ecology. Theoretical ecology emphasizing the evolution of life cycles, mathematical properties of systems of interacting species, and mechanisms of species interactions. Laboratories

emphasize biometrical and experimental testing of ecological theory in relation to a variety of habitats. Individual projects and weekend field trips. Prerequisites: Zoology 103, calculus, senior or graduate standing, or permission of instructor. One course. *H. Wilbur*

205. Elements of Theoretical Biology. An introduction to elementary mathematical biology, conceived as the study of axiomatized mathematical theories and their biological models. Prerequisites: college biology and mathematics, or consent of instructor. One course. *Gregg*

214L. Biological Oceanography. Composition in time and space of marine biosphere in relation to descriptive marine chemistry, physics, and geology. Some work at sea aboard the research vessel. Prerequisites: chemical oceanography or permission of instructor. (Given at Beaufort.) One and one-half courses. *Barber*

216L. Limnology. Lakes, ponds, and streams; their origin, development, geochemistry, energy balance, productivity, and the dynamics of plant and animal communities living in them. Lectures, field trips, and laboratory work. Usually offered in alternate years. Prerequisites: college biology, chemistry, physics, and Mathematics 31, or permission of instructor. One course. *Livingstone*

218L. Paleobiology. Pleistocene ecology, climatology, and ecological geography; laboratory study of lake beds with emphasis on pollen grains. Prerequisites: consent of the instructor and a course in ecology. One course. *Livingstone*

224L. Vertebrate Zoology. Life histories, adaptations, ecology, and classification of vertebrate animals. Lectures and laboratories. Prerequisite: Zoology 108. One course. *Bailey*

229. Morphogenetic Systems. Lectures on the interplay of theory and experiment in twentieth century developmental biology. Prerequisite: college biology. One course. *Gregg*

238L. Systematic Zoology. Theory and practice of collection, identification and classification of animals. Lectures and laboratories. Prerequisite: college biology. One course. *Bailey*

239S. Biogeography. Old and new distributional concepts of animals and plants involving physical geography, geology, paleontology, systematics, evolution, population dynamics, and dispersal. Prerequisite: permission of the instructor. One course. *Bailey*

245. Radiation Biology. Actions of ionizing and excitational radiations on life processes; biological use of radioactive tracers; nucleonics. Prerequisites: college physics, mathematics, and chemistry. One course. *Fluke*

245L. Radiation Biology. Same course as 245 with laboratory included. One course. *Fluke*

246S. Physical Biology. Physical principles of structure and function in large biological molecules and aggregates; applications to function at higher levels of organization, and to biological fitness. Prerequisites: college mathematics, chemistry, physics, and one biology course beyond the introductory course, or consent of instructors. One course. *Fluke and Wainwright*

248. Introductory Biochemistry. The chemistry of proteins, lipids, carbohydrates, nucleic acids, and the metabolic interrelationships of these com-

pounds. The biochemical basis of photosynthesis, genetics, vision, nutrition, nerve conduction, and muscle contraction will also be considered. Prerequisites: organic chemistry (second semester may be concurrent) and college mathematics, or permission of instructor; Chemistry 61 or 101 is recommended. One course. (Also listed as Biochemistry 247 and Botany 248.) Sage (Biochemistry)

250L. Physiological Ecology of Marine Animals. The physiology of marine animals as related to environmental factors of salinity, temperature, oxygen, and light. Prerequisite: a course in physiology. (Given at Beaufort.) One and one-half courses. *Forward*

252. Comparative Physiology. The physiological mechanisms of animals studied on a comparative basis. Prerequisite: Zoology 151 or equivalent. One course. *Schmidt-Nielsen*

254S. Fluid Flow and Living Systems. Physical principles of low speed flow; applications to locomotion, circulation, dispersal, ventilation, filtration, and heat dissipation. Prerequisites: college physics and Mathematics 31 or equivalent. One course. *Vogel*

258L. Laboratory Research Methods. Radioisotope methods, spectrophotometry, light microscopy, transmission and scanning electron microscopy, X-ray diffraction, gel electrophoresis, isolation of cell components, and other methods. Students may select methods according to their interests and research needs. Prerequisite: consent of the instructor. Credits to be arranged. *K. Wilbur and Staff*

260. Advanced Cell Biology. Structural and functional organization of cells and their components, emphasizing current research problems and prospects. Prerequisites: introductory cell biology or genetics and permission of instructor. One course. *Nicklas, K. Wilbur, and Staff*

262L. Cytological Materials and Methods. General cytological analysis, with emphasis on chromosome studies using current optical, cytochemical, and experimental techniques. Prerequisite: Zoology 160 or 260 or equivalent (may be taken concurrently). Half-course. *Nicklas*

266S. Topics in Cell Structure and Function. Advanced discussion of selected problems such as chromosome structure, mitosis, and cytological aspects of inheritance and development. Prerequisites: Zoology 160 or 260 or equivalent and permission of the instructor. (Alternates with Zoology 288.) (Also listed as Anatomy 266.) Half-course. *Nicklas and Moses (Anatomy)*

274L. Marine Invertebrate Zoology. Structures, functions, and habits of invertebrate animals under normal and experimental conditions. Field trips included. Not open to students who have had Zoology 275. Prerequisite: college biology. (Given at Beaufort.) One and one-half courses. *Staff*

275L. Invertebrate Zoology. Lectures, readings, and laboratory work dealing with free-living and parasitic invertebrates. Field trips to freshwater and marine habitats. Not open to students who have had Zoology 173, 174, or 274. Prerequisite: college biology. (Also listed as Zoology 175L.) One course. *Bookhout*

277L. Endocrinology of Marine Animals. Control of growth, regeneration, reproduction, metabolism, and other aspects of physiology of marine animals; primarily invertebrates. Prerequisite: one course in physiology. (Given at Beaufort.) One and one-half courses. *Hagadorn (Visiting Summer Faculty)*

278L. Invertebrate Embryology. Lectures, readings, and laboratory work dealing with rearing, development, and life histories of invertebrates. Prerequisite: consent of the instructor. (Given at Beaufort.) One and one-half courses. *Bookhout*

280. Principles of Genetics. Structure and properties of genes and chromosomes and evolution of genetic systems. Prerequisites: introductory courses in biology, chemistry, and mathematics, or equivalent. (Also listed as Botany 180, Botany 280, and Zoology 180.) One course. *Boynton (Botany), Gillham, and Others of the University Program in Genetics*

286. Evolution. Processes of adaptation and evolution in individuals, populations, and genetic systems. (Also listed as Botany 186, Zoology 186 and under the University Program in Genetics). Not open to students who have had courses previously numbered Zoology 109 or Botany 240. Prerequisite: genetics or consent of the instructor. One course. *Antonovics (Botany), Lundberg, and H. Wilbur*

286L. Evolution. Same as 286 with laboratory included. One course. *Antonovics (Botany), Lundberg, and H. Wilbur*

288S. The Cell in Development and Heredity. A seminar on topics of current interest and controversy. (Alternates with Zoology 266.) Prerequisites: a course in genetics and permission of one instructor. (Also listed as Anatomy 288.) Half-course. *Counce, (Anatomy), Gillham, and Staff*

295S, 296S. Seminar. Topics, instructors, and course credits announced each semester. *Staff*

Genetics, The University Program. Genetics courses offered by the Department of Zoology are part of The University Program in Genetics; see announcement in this *Bulletin*

Marine Laboratory. Consult Marine Sciences in this *Bulletin* for offerings at the Duke University Marine Laboratory and for details of the spring semester program for undergraduates at Beaufort.

DEPARTMENTAL MAJOR

Prerequisites. Biology 11-12 or Biology 14 or consent of the Director of Undergraduate Studies.

Major Requirements. A minimum of 8 courses, not including the above prerequisites. Of the 8 courses, at least 4 must be zoology courses other than independent study and seminars, 2 of which must have related laboratory experience. Three of the remaining 4 courses ordinarily consist of courses in chemistry beyond organic chemistry or courses in other related departments beyond the introductory level. Acceptance of such courses for inclusion in the basic 8 requires prior permission of the Director of Undergraduate Studies with the exception of Chemistry 160 and any mathematics course beyond Mathematics 31 and 32. No one course may be used to satisfy the requirements for zoology and another major, or for a zoology major and a distributional requirement. (Members of classes entering prior to 1972 may be graduated under these regulations if they wish.)

Areas of Concentration. Molecular and cellular biology (cell physiology, cytology, genetics, development); organismic biology (comparative physiology, comparative and functional morphology, embryology); population biology (population genetics, speciation, systematics, biogeography); animal behavior; ecology (including biological oceanography and limnology).

Departmental Handbook for Majors. Any student who is interested should obtain a copy of the *Handbook for Zoology Majors* from the office of the Director of Undergraduate Studies. The *Handbook* suggests appropriate combinations of courses for the above listed areas of biological study, describes the advising system and special programs, and gives the interests and background of the faculty.

B.A. and B.S. Degrees. No distinction is made between the B.A. and B.S. degree; you may receive either degree by indicating your choice at the time of declaration of your major.

School of Nursing

Professor Wilson, Dean; Associate Professor Most, Director of Academic Programs; Professors Fortune, Gratz, Jacobansky, Minniear, Stone, and Whitner; Associate Professors Hall, Horton, Norville, and Schenk; Assistant Professors Anderson, Bourbous, Breedlove, Brundage, Bullock, Davenport, Dery, Dietz, Gelein, Hogue, Ingram, Kirkpatrick, Lamper, Long, Montgomery, Persing, Pounds, Smith, Turner, and Young; Instructors Askins, Bowling, Craig, Hesse, Hewitt, Humphrey, Kaufman, Kusel, Messick, Wendt, and Woods; Lecturers Harris, Mandetta, and Reckless

97, 98. Human Ecology I and II. An interdisciplinary course in the natural sciences covering the impact of a changing physical and biological environment upon man. Prerequisites: two courses in natural science. Two courses. Gratz

101-102. Theoretic and Scientific Bases of Nursing Practice. Builds upon courses in human ecology to explore major theories of man's normal adaptive responses and his responses to threats to his health. Multicausal factors and gradients of disease are considered from the framework of major assaults to man's integrity: excesses and deprivation, infection, trauma, endocrine imbalance, malformations, and neoplasms. Prerequisites: Nursing 97 and 98 or equivalent. Two courses. Staff

103-104. Development of Nursing Skills and Attitudes. Correlated with Nursing 101-102 by selection of patients as exemplars of man's normal adaptation and his response to assaults. Students will be giving nursing care to these patients of all ages in a variety of settings. Likenesses and differences will be shared in weekly seminar. Nursing practice will encompass the development of psychomotor skills essential to the process of nursing. Prerequisites: Nursing 97 and 98 or equivalent. Four courses. Staff

105. Human Genetics and Societal Problems. A course in the current state of research on birth defects, biochemical disorders, the human chromosome complement, and malformations resulting from mishaps in the chromosomes. Open to non-nursing majors. Half-course. Pass/fail option. Gratz

121. Parenthood. An investigation of parenting behavior with a focus on the meaning of experiences to the mother and father and the means by which individuals can maximize the positive potential of these experiences. Open to sophomores or above and non-nursing majors. One course. Pass/fail option. Harris

151. Functional Aspects of Nursing Practice. Theories, practices, and constraint influencing functional roles in nursing practice, e.g., economics and systems of health care, organization, and administration of agencies and institutions delivering health care, legal protection, and constraints of

the practitioner. Prerequisites: Nursing 102 and 104. One course. *Dietz and Schenk*

153, 154. Distributive and Episodic Nursing Practice. Continuation of Nursing 101-102, and Nursing 103-104 into the senior year. Each student will have learning experiences with patients in each of the major clinical areas: medical, surgical, psychiatric, maternal and child health, and community health nursing. In *Distributive Nursing Practice*, the family life cycle is the focus for acquiring the conceptual, interpersonal, and technical skills for the assessment, promotion, and maintenance of health of families and other groups. Community facilities and ambulatory health services are the locales for nursing practice. The focus of *Episodic Nursing Practice* is the direct care of hospitalized patients with complex, acute or chronic, mental, and physical illness wherein rapid and/or crucial nursing decisions are required and collaboration with other health disciplines is essential. Prerequisites: Nursing 102 and 104. Four courses. *Staff*

161. Applied Human Physiology. An in-depth study of selected physiological processes significant to the health needs of man. Emphasis is upon those aspects of physiology that are reflected in patient care problems requiring effective nursing intervention. Open to non-nursing majors. One course. Pass/fail option. Fall only. *Gratz*

162. Ecological Concepts and Their Application to Environmental Health. An in-depth study of current environmental problems significant to the health needs of man. Emphasis is on those ecological concepts that are reflected in patient health problems. Open to non-nursing majors. One course. Pass/fail option. Spring only. *Gratz*

163S. Suicidology and Crisis Intervention. Exploration of theories related to destructive behavior and methods for intervening and managing individuals and families before, during, or following such periods. Clinical practice will be provided for applying theories and techniques. Open to non-nursing majors with the permission of the instructor. One course. Pass/fail option. *Staff*

167S. Poverty and Health. A study of poverty designed to develop an awareness of the relationship between poverty and health. Seminars, films, and actual experience with poverty groups will be used to acquaint the student with a diversity of perceptions and observations germane to an understanding of health problems among the poor. Open to non-nursing majors with the permission of the instructor. One course. Pass/fail option. *Bowling and Humphrey*

169. Human Sexuality. A study of the intrapersonal, interpersonal, and sexual aspects of an individual's existence and the forces shaping prevailing and future sexual expressions and human sexuality. Open to non-nursing majors. One course. Pass/fail option. *Reckless and Woods*

172. Psychosomatic Illness and Group Process. A study of patients with psychosomatic and somatopsychic illness with opportunities to explore causal factors together with approaches for alleviation. Nursing and medical students assume responsibility for direct patient care under supervision and have the opportunity to attend group therapy sessions. Permission of the instructor. Pass/fail option. One course. *Reckless*

178S. Advanced Concepts of Nursing for Patients with Cardiovascular Disease. Examination and clinical exploration of the role of the nurse in pro-

viding health care to individuals with cardiovascular disease. Open to senior nursing students. One course. Pass/fail option. *Dery and Kirkpatrick*

179. Nursing in Nephrology. Planned experience providing nursing care for patients with clinical disturbances of renal function utilizing current treatment modalities in a variety of treatment settings. Open to second semester juniors and seniors in the nursing major. One course. Pass/fail option. *Brundage*

183. Introduction to Methods of Research in Nursing. Study of the research process in nursing; emphasis on critical analyses of published research reports with implications for nursing practice. Prerequisites: basic statistics and Nursing 103 or permission of the instructor. One course. Pass/fail option. *Whitner*

187. Patient Evaluation. A study of the historical development of disease process through methods and techniques of eliciting health history and physical examination. The relationship of historical and physical data is demonstrated by repeated experience with in-hospital patients. Open to seniors and second semester juniors. Permission of the instructor through submission of self-objectives for course. One course. Pass/fail option. *Wilson*

189. Psychiatric Nursing. Focuses on dynamic psychiatric nursing and provides opportunities for the student to increase depth of knowledge of and skill in applying concepts of psychiatric nursing intervention in selected settings. Open to seniors in the nursing major. One course. Pass/fail option. *Bullock*

191, 192, 193, or 194. Independent Study. Demonstration of self-direction in planning, implementing, evaluating, and reporting an independent learning experience. The required study for nursing majors must focus on nursing. Minimum of one course. Pass/fail option. *Staff*

MAJOR IN NURSING

The major requirements are included in the minimum total of 32 courses listed under Lower and Upper Division Requirements on page 25. The specific courses in the upper division satisfying the nursing major that must be included are: Nursing 101, 102, 103, 104, 151, 153, 154, and 191, 192, 193, or 194.

School of Engineering

ENGINEERING (INTERDEPARTMENTAL)

5, 6. Engineering Experiences. In order to provide opportunities for engineering freshmen to become involved in engineering activity and to assist them in determining areas of interest, a number of engineering faculty members have developed miniprojects approved by the department of the faculty member. A list and brief description of each project with enrollment limitations are printed each semester. Two one-quarter courses. Pass/fail option. *Staff*

11. Engineering Graphics. Graphical theory and techniques for engineering design and communication. Visualization and conventional representation of points, lines, surfaces, and objects using freehand sketches. Orthographic (including sectional and auxiliary), perspective, isometric, and oblique views. Introduction to working drawings. Elements of descriptive geometry, and graphic mathematics. Not open to seniors. Half-course. *Arges*

31. Computers in Engineering. Introduction to use of digital computers in engineering. Attributes of digital computer systems; program languages, flow charts; numerical analysis, including approximation and interpolation, searches and maximization, linear equations; applications to engineering; introduction to decision processes in engineering, including linear programming, optimization network methods; punched card operation; graphical output. Not open to students who have completed Computer Science 51, or M.E. 31. One course. *Clough, Utku, and Warner*

72. Introduction to Systems Dynamics. Unified treatment of mechanical, electrical, fluid, and thermal dynamic systems. Formulation and solution of differential equations; operators, transfer functions, and complex variables. Energy concepts for multiport system analysis. Simulation and analog solution of a variety of engineering problems. Prerequisites: Physics 51 and Math. 32. One course. *Wright, Garg, and Macduff*

75. Mechanics of Solids. Analysis of force systems and their equilibrium as applied to engineering systems. Stresses and strains in deformable bodies; mechanical behavior of materials; applications of principles to static problems of beams, torsion members, and columns. Selected laboratory work. Not open to students who have completed C.E. 23 (see C.E. 73). Prerequisites: Physics 51 and Math. 32. One course. *Arges, Palmer, and J.F. Wilson*

83. Structure and Properties of Solids. An introduction to materials science and engineering, emphasizing the relationships between the structure of a solid and its properties. The atomic and molecular origins of electrical, mechanical, and chemical behavior are treated in some detail for metals, alloys, polymers, ceramics, glasses, and composite materials. Prerequisites: Chemistry 11 and Math. 31. One course. *Shepard, Cocks, and Pearsall*

104. Heat Transfer and Thermodynamics. Fundamentals of heat transfer; multidimensional and unsteady conduction, convection, radiation, combined modes, and internal heat generation. Introduction to classical thermodynamics; first and second laws, properties, compressible flow, and psychrometrics. Prerequisites: Physics 52 and Math. 103. One course. *Chaddock and Kenyon*

113. Current Topics in Materials Applications. Extension of the principles of Engineering 83 to areas of current interest, such as biomaterials, fuel cells, composite materials, materials problems in energy conversion systems, computer systems, stress corrosion cracking, and other topics. Prerequisite: Engineering 83. One course. *Cocks, Pearsall, and Shepard*

122. Transport Phenomena. A unified treatment of momentum, energy and mass transport from the continuum viewpoint, emphasizing the formulation and solution of engineering problems. Conservation laws, constitutive equations, their combinations, and methods of problem solution. Selected laboratory work. Prerequisite: Math. 103. One course. *Chaddock and Harman*

123. Dynamics. An introduction to the principles of particle and rigid body dynamics with engineering applications. Vector analysis used to describe the kinematics of motion in space and in a plane; the inertia tensor. Concepts of impulse-momentum and work-energy. An introduction to vibrations, wave motion, and Lagrange's equation. Prerequisites: Math 104 and Physics 51. One course. *Dvorak and J. F. Wilson*

145. Fluid Mechanics. Physical properties of fluids; fluid-flow concepts and basic equations; continuity, energy and momentum principles; dimen-

sional analysis and dynamic similitude; viscous effects; applications emphasizing real fluids. Selected laboratory work. Corequisite: Engineering 123 or M.E. 123. One course. Muga and J. F. Wilson

161, 162. Interdisciplinary Resources for Community Problem-Solving.

The objectives of this course are to assist the student in an understanding of the self, the interaction of the self with others and the environment, and in the analysis of information useful for decision-making. Problems in the community are used as a vehicle for developing group and individual approaches to the resolution of specific problems of interest to the students in the course. Prerequisite: permission of instructor. Two courses. Artley

169. Legal Aspects of Engineering. A course designed to introduce engineering students to those aspects of the law encountered in the practice of engineering. Subjects included are: contracts and specifications, real and personal property, torts, insurance, agency, equity, evidence, labor management, sales, expert testimony, engineering registration, and ethics. Open to seniors only. One course.

170. Proprietary Law for Engineers. Patents, trademarks, copyrights, trade secrets, and other forms of intellectual property are reviewed as individual and interrelated subjects. Representative law cases are assigned and discussed particularly as they affect engineering practice. Patent procedure is reviewed in some detail. Open to seniors only. One course.

171. Systems Engineering: Deterministic Models. Fundamentals of economic decision-making for alternative engineering designs. Mathematics of cost comparisons. Selection of optimal engineering systems with time-dependent costs and benefits. Principles of optimization. Linear and dynamic programming. Network analysis and critical path scheduling. Applications from decision processes in engineering and planning with particular emphasis on public works systems. Fall semester. One course. Dajani

172. Systems Engineering: Probabilistic Models. The purpose of this course is to provide an adequate foundation for application of probabilistic models to a variety of systems engineering problems. Emphasis is on the fundamental principles underlying various probabilistic models. Subjects considered are elementary concepts of probability theory and an introduction to decision-making under uncertainty with emphasis on the Bayesian approach to statistical decision theory. Problems selected from several areas of application. Prerequisite: Math. 32. Spring semester. One course. Kerr and Nolte

173. Advanced Mechanics. Mechanical behavior of elastic, elastic-plastic, viscoelastic, and viscoplastic materials. Analysis of stresses and strains in simple structural elements, such as bars, shafts, beams, shells, and pressure vessels made of time-dependent and time-independent materials. Static and dynamic loading. Mechanical properties of solids under high rates of strain. Introduction to fracture mechanics. Brittle and ductile fracture, fatigue. Prerequisites: Engineering 83 and 75 or C.E. 73. One course. Dvorak

174. Technology Assessment and Social Choice. Economic, psychological, and ethical problems of optimizing design of technological systems; interaction of technology, society, and policy planning; conflicts between goals, institutions, public and private interests; citizen participation and feedback; impact evaluation; case studies in areas such as biomedical, communications, and computer technology. (Listed also as Public Policy Studies 174.) One course. Garg and Clark

175. Aesthetics in a Technological Culture. An examination of the role of aesthetics, both as a goal and as a tool, in a culture which is dependent on technology. Conceptual modeling, experimental learning, perceptual awareness, problem formulating, problem solving, and the sensory environment as a design constraint will be discussed in terms of their relationships to technology. Line, space, texture, color, and value will be experienced and analyzed through individual and group projects. Fall semester. One course. Pearsall

177S, 178S-179S. Metropolitan Service Systems. The supply of public and private service delivery systems. Intergovernmental relationships and the selection of appropriate decision units. Resource allocation processes and budget mechanisms. Technological inputs and decision processes in local service policy. (Listed also as Public Policy Studies 177S, 178S-179S.) Three courses. Dajani, Leach, and Stewart

180S, 181S-182S. Transportation Policy. National, state, and local transportation policies. The role of the public and private sectors in the supply of transportation services. Government regulation of the transport industries. The role of technology in decision-making in the transportation sector. Decision processes in local transportation policies. (Listed also as Public Policy Studies 180S, 181S-182S.) Three courses. Garg

183, 184. Projects in Engineering. Courses in which engineering projects of an interdisciplinary nature are undertaken. The projects must have engineering relevance in the sense of undertaking to meet human need through a disciplined approach under the guidance of a member of the engineering faculty. Prerequisite: approval of instructor. Two courses. Engineering Faculty

BIOMEDICAL ENGINEERING

Professor Pilkington, Chairman; Associate Professor Clark, Director of Undergraduate Studies; Professors Bennett, McElhaney, Nolte, Thurstone, and Wolbarsht; Associate Professors Barr, Hammond, and Wachtel; Assistant Professor V. Evans; Adjunct Associate Professor Hills

Biomedical engineering includes the application of concepts and methods in the physical, mathematical, and engineering sciences to biology and medicine. This definition covers a broad spectrum ranging from formalized mathematical theory through experimental science to practical clinical applications. The purpose of the undergraduate program in biomedical engineering is to permit students who plan to dedicate their professional careers to the biomedical area to prepare themselves adequately for graduate work in biomedical engineering, medicine, or biology. This program is flexible and can satisfy the requirements for entrance either to graduate work in engineering, physiology, biology, or to medical school.

Opportunities for student research are available in the following biomedical engineering laboratories: The Cardio-Respiratory Systems Laboratory includes a PDP-12 digital computer, a PAR signal averager, and an analog computer. Computer science techniques are utilized in acquiring, processing, and modeling biological data. Research in the Biomedical Materials Laboratory is directed toward the development of materials suitable for use in biological environments such as the vascular system; Biomedical Engineering in Pediatric Cardiology measures electrical activity of the heart in animals and humans, to increase the basic knowledge of the heart itself.

The Optics and Acoustics Laboratories are employed for research and instruction in the biomedical application of these fundamental areas. Ultrasound instrumentation measures and images biological tissue structures. The Neural Networks Laboratory explores the communication of information between individual nerve cells in prototypical brains. Optical, mechanical, and electronic equipment is used in recording neural activity, and computational equipment is employed for data analysis and simulation.

71. Discrete-Systems Analysis. Analysis of physical systems by linear discrete models with emphasis on methods suitable for digital computer usage. Convolution-summation, Z transforms, system transfer functions, and digital filters. Prerequisites: Math. 31 and Computer Science 51 or equivalent. One course. (Listed also as Computer Science 71.) *Pilkington*

163, 164. Biomedical Electronics and Measurements. A study of the basic principles of biomedical electronics and measurements with emphasis on the operational performance and selection of transducers, instruments, and systems for biomedical data acquisition and processing. Selected laboratory work emphasizes the measurements of specific physiological events. Prerequisite: E.E. 63 or Engineering 72. Two courses. *Thurstone and Hammond*

172. Biomedical Transfer Processes. An introduction to transfer processes and life systems with emphasis on biological interactions of artificial materials and environmental studies. Prerequisite: Engineering 122. One course. *Clark and Evans*

181. Biomedical Modeling. Introduction to biomedical modeling with particular emphasis on neural and cardiovascular systems exhibiting phenomena varying from cellular to the whole organism level. Prerequisite: Biomedical Engineering 164. One course. *Wachtel*

191-192. Projects in Biomedical Engineering. This course is available to seniors who express a desire for such work and who have shown aptitude for research in one area of biomedical engineering. Half-course to two courses. *Staff*

201. Analysis of Bioelectric Phenomena. Fundamentals of bioelectric modeling with particular emphasis on neural and cardiovascular systems exhibiting phenomena varying from cellular to the whole organism level. Not open to students who have had Biomedical Engineering 181. One course. *Wachtel*

202. Energy and Rate in Biological Processes. An introduction to biomedical thermodynamics and transfer processes with particular emphasis on environmental studies, hyperbaric exposure, and the functions of natural and artificial organs. Not open to students who have had Biomedical Engineering 172. One course. *Clark and Bennett*

223. Biomedical Materials and Artificial Organs. The use of artificial organs to replace or augment natural function in pumping and oxygenation of blood, removal of nitrogenous wastes and other toxins, and prostheses which have mechanical, chemical, or cosmetic function. Emphasis is placed on molecular architecture of materials for use in biological environment and optimization of parameters of materials which determine their utility in varying applications. One course. *Clark*

265. Advanced Topics in Biomedical Engineering. Opportunity for study of advanced subjects related to programs within biomedical engineering tailored to fit the requirements of a small group. Prerequisites: approval of

the chairman and the instructor under whom work will be done. One course.
Staff

Departmental Major in Biomedical Engineering

The major requirements are included in the minimum total of 32 courses listed under general requirements and departmental requirements. The specific courses Biomedical Engineering 71, 163, 164, 172, and 181 must be included.

CIVIL ENGINEERING

Professor Vesic, *Chairman*; Professor Brown, *Director of Undergraduate Studies*; Professor Utku; Associate Professors Clough, Dvorak, Muga, Palmer, and Wilson; Assistant Professors Arges, Dajani, Vesilind, and Warner; Adjunct Assistant Professors Coffin and Drye; Instructors Hayward and Tsui; Lecturers Behn and Rimer

Civil engineering may be defined as the art of conception, design, analysis, and building of constructed facilities. However, the modern civil engineer may find himself engaged in such complex problems as trafficability of planetary surfaces, environmental planning for a community, or optimization of an urban transportation system. There are seven major speciality areas of civil engineering at Duke. Environmental engineering deals with the quality of human environment as affected by water supply and wastewater treatment and disposal. Geotechnical engineering is concerned with interaction between engineering structures and the earth's crust as well as with structures constructed of earth as a material. Mechanics and materials engineering is the study of the behavior of materials under various conditions of loading and environment. Ocean engineering deals with the development and use of water and resources. Structural engineering is concerned with economical and safe design of engineering structures. Urban engineering encompasses a broad spectrum of integrated technological problems such as land and city planning and development, mass transportation, and public health and safety. Water resources engineering is concerned with the usage, preservation, and replenishment of water resources. In addition, a student may elect a general program of civil engineering studies or an interdisciplinary program of management sciences combined with civil engineering. He may also pursue a degree with a double major in civil engineering and the policy sciences, by additionally satisfying the requirements of the Institute of Policy Sciences and Public Affairs.

The Civil engineering program at Duke is supported by several laboratories for instruction and research. The Structural Engineering Laboratory has universal testing machines with capacities to 400,000 pounds; hardness testers; and machines for testing torsion, fatigue, and impact. The department has facilities for the construction and testing of structural models, including medium-speed electronic equipment for the measurement and recording of strains and displacements. The Soil Mechanics Laboratory includes modern testing equipment and instruments, such as static and dynamic model testing accessories, as well as a triaxial shear apparatus, designed for testing soil and rock at confining pressures up to 100,000 pounds per square inch. The Fluid Mechanics Laboratory equipment includes a water wave flume with paddle-type variable frequency, constant amplitude, wave generator, and a variety of sensors. The Sanitary Engineering Laboratory is equipped for determining the characterization of waters and wastewaters

and for applying biological, chemical, and physical treatment methods to improve their quality. The Materials Laboratory deals with the physical properties and stress-deformation characteristics of bituminous mixtures and concretes. The Urban Systems Laboratory is equipped with a PDP-8 digital computer and a teletype terminal. The department has a representative collection of modern surveying equipment.

16. Surveying for Engineers. The theory and application of measurements required for planning, design, and construction of engineered facilities. Transit-tape and stadia surveys; differential and profile leveling; traverse computations. Laboratory included. Not open to seniors. Corequisite: Math. 31. Half-course. Arges

23. Statics. Analysis of force systems and their equilibrium as applied to engineering systems; algebraic and graphic methods used with vector notation where appropriate. Corequisite: Math. 32. One course. Staff

73. Mechanics of Deformable Bodies. Stresses and strains in deformable bodies; mechanical behavior of materials and relation of stress to strain; applications of principles to static problems of beams, torsion members, and columns. Selected laboratory work. Prerequisite: C.E. 23. One course. Arges

116. Transportation Engineering. The role and history of transportation. Introduction to the planning and design of links, vehicles, and terminals of all transportation modes. Principles of traffic engineering and route location and design. Planning studies and economic evaluation. Prerequisite: junior or senior standing; consent of instructor for non-engineering students. One course. Dajani

117. Public Systems Planning. The systems approach to public policy planning. Mathematical modeling and computer simulation techniques. Estimation, forecasting, and decision-making. System evaluation models. Decision processes in the land-use, transportation, public utilities, and urban service sectors. Prerequisite: Math. 32. One course. Dajani

123. Water Resources Engineering. Hydraulics of pressure conduits and measurement of flow, compound pipe systems, analysis of flow in pressure distribution systems, descriptive and quantitative hydrology applied to problems of irrigation and drainage, open channel flow, reservoirs and distribution system storage. Selected laboratory work. Prerequisite: Engineering 145. One course. Warner and Muga

124. Environmental Engineering. Qualitative and quantitative physical, chemical, and bacteriological characterization of water and wastewater. Introduction to water treatment processes and wastewater collection, treatment and disposal systems; elements of environmental sanitation. Laboratory included. Field trips to be arranged. Corequisite: Engineering 145 or consent of instructor for non-civil engineering students. One course. Vesilind and Rimer

126. Sanitary Engineering Design. Design of facilities for providing an adequate supply of water of good quality, and means for collection, treatment, and disposal of municipal and industrial wastewaters. Location and design of treatment works. Field trips to be arranged. Prerequisite: C.E. 124. One course. Rimer and Vesilind

127. Environmental Pollution. A study of the environment—causes and effects of air, land, and water pollution. Interactions between the environment and stresses to which it is subjected as a consequence of growth and

concentration of populations and their increasing demands on natural resources. For non-civil engineering juniors and seniors. One course. *Vesilind*

131. Structural Analysis I. An introduction to the process of applying the engineering method in the creation of structures. A unified treatment of statically determinate and indeterminate structural systems. Prerequisites: Math. 103 and C.E. 73 or Engineering 75. One course. *Brown and Utku*

133. Structural Design I. Nonhomogenous materials. Determination of physical and mechanical properties of construction materials. Theory and design of compression and flexural members. Emphasis on ultimate strength theory for concrete. Timber design using mechanical fasteners, selected design problems in concrete to include form and timber supports. Prerequisite: C.E. 131. One course. *Palmer*

134. Structural Design II. Design in metals, primarily steel. Properties of materials as criteria for failure. Tension, compression, and flexural members. Riveted, bolted, and welded connections, including eccentric connections. Built-up members. Design by elastic and plastic methods. Selected problems to include computations and drawings. Prerequisite: C.E. 131. One course. *Palmer*

139. Introduction to Soil Mechanics. Origin and composition of soils, soil structure. Flow of water through soils; capillary and osmotic phenomena. Soil behavior under stress; compressibility, shear strength. Elements of mechanics of soil masses with application to problems of bearing capacity of foundations, earth pressure on retaining walls, and stability of slopes. Laboratory included. Prerequisites: Engineering 83 and 145. One course. *Vesic and Clough*

140. Structural Analysis II. An elective course for students who have a special interest in structures. Fundamental and special methods applied. Introduction to limit design and to matrix and computer methods. Prerequisites: C.E. 131 and Math. 104. One course. *Brown and Utku*

141, 142. Special Topics in Civil Engineering. Study arranged on a special topic in which the instructor has particular interest and competence as a result of research and professional activities. Prerequisites: permission of the instructor and the Director of Undergraduate Studies. Each, half-course or one course. *Staff*

197, 198. Projects in Civil Engineering. These courses may be taken by junior and senior engineering students who have demonstrated aptitude for independent work. Prerequisites: permission of the instructor and the Director of Undergraduate Studies. Each half-course or one course. *Staff*

201. Advanced Mechanics of Solids. Cartesian tensors, dyadics, and matrices. Analysis of states of stress and strain. Conservation laws and field equations. Constitutive equations for elastic, viscoelastic, and elastic-plastic solids. Formulation and solution of simple problems in elasticity, viscoelasticity, and plasticity. Corequisite: Mathematics 285 or equivalent. One course. *Dvorak*

202. Experimental Mechanics. Types of measurements and instrumentation used in fluid, soil, and solid mechanics; static and dynamic modeling theory; stress-strain analysis using photoelasticity and strain gages. One course. *J. F. Wilson*

203. Elastic Stability. Linear buckling problems of structures in continuum such as bars, rings, beams, curved beams, thin plates, and thin

shells. Linear buckling of structures in discrete space, such as trusses, frames, and discrete representations of plates and shells. Differential equation formulations versus extremum formulations in linear buckling problems. Systematic treatment of buckling problems as linear eigenvalue problems in discrete space and in continuum. Numerical methods for eigenvalue extraction. One course. *Utku and Wilson*

204. Plates and Shells. Formulation of linear equilibrium problems of Kirchhoffian and non-Kirchhoffian thin plates of isotropic and orthotropic materials. Solutions in terms of previously tabulated functions. Finite difference methods. Extremum formulation of the plate problem. Finite difference and finite element methods as applied to the extremum formulation. Folded plates. Numerical solution methods for the folded plates. Membrane theory of thin shells. One course. *Utku*

205. Elasticity. Introduction to linear theory of elasticity. Constitutive equations for anisotropic and isotropic elastic solids. Formulation and solution of torsion, bending, and plane problems by semi-inverse, complex potential, and variational methods. Three-dimensional problems. Prerequisite: C.E. 201 or equivalent. One course. *Dvorak*

210. Intermediate Dynamics. Comprehensive treatment of space kinematics, kinetics of particles and rigid bodies; generalized coordinates and Lagrange's equations; introduction to stability and random dynamic analysis of flexible, continuous systems. (Listed also as M.E. 210.) One course. *J. F. Wilson and Macduff*

212. Mechanical Behavior of Materials. Mechanical behavior and its relationship to microstructural deformation and fracture processes in polycrystalline, polymeric, and composite materials. Influence of temperature, strain rate, and environmental conditions on material behavior. Fracture mechanics and its application to brittle and ductile fracture, and fatigue in structural metals, polymers, composites, and concrete. Prerequisite: C.E. 201. One course. *Dvorak*

215. Urban and Regional Geography. Study and analysis of human settlements and locational patterns. Location theory and land-use systems. Normative and descriptive location decision. Location and impact of constructed facilities. Spatial interaction and network structure. Geography of transportation and environmental quality. One course. *Dajani*

216. Transportation Planning and Policy Analysis. Techniques used for the prediction of transportation demand. The transportation planning process: data collection, trip generation, modal choice, trip distribution and assignment. System evaluation techniques: social, economic, and environmental impacts of transportation. Issues in policy planning and decision-making. Prerequisite or corequisite: C.E. 116 or consent of instructor. One course. *Dajani*

217. Urban and Environmental Systems Analysis. Quantitative approaches to the analysis of public services, activities, and facilities. Mathematical modeling techniques. Optimization of urban and regional systems. Urban growth models. Structuring, solving, and evaluating multi-objective problems in the areas of land use, public services, and environmental quality. Prerequisites: C.E. 117 and Engineering 171 or equivalent. One course. *Dajani*

221. Incompressible Fluid Flow. Steady and unsteady pipe flow, theories of turbulent flow; water hammer theory and control; surge tanks; air cham-

bers; the analysis and control of fluid systems; effect of resistance; tapered conductors. One course. *Muga*

222. Open Channel Flow. Basic principles. Selected flow problems and practical solutions; gutter and inlet flows, flow over spillways, flow into estuaries and bays. Design of open channel structures, river hydraulics. Design of flood control and navigation structures; culverts, bridge openings, and energy dissipators. One course. *Muga*

223. Flow Through Porous Media. Theory of miscible and immiscible fluid displacement processes. Derivation and solution methods. Selected problems in stability, fingering, and capillarity. Applications; saline water intrusion, secondary recovery processes, seepage through earthen dams, dewatering of construction sites, and well point operation. One course. *Muga*

224. Coastal and Offshore Engineering. Basic analytical concepts; wave phenomena, theory of surface water wave motion, wave modification, and wave spectra. Effects of waves on structures emphasizing design of marine facilities and other selected problems. One course. *Muga*

225. Engineering Hydrology. Study of processes governing the origin, distribution, and depletion and replenishment of water resources, and application of this knowledge to the solution of water supply and drainage problems. Topics include the hydrologic cycle, hydrometeorology, precipitation, runoff, hydrograph analysis, evapotranspiration, infiltration, groundwater, runoff, stream flow, groundwater recharge, and hydrologic measurements. One course. *Warner and Vesilind*

230. Matrix Methods in Structural Analysis. A study of the displacement method of structural analysis and the use of matrices in the analysis of rigid frames and trusses; application to multispan and multistory frames and space trusses. Computer solutions are emphasized. Prerequisite: C.E. 140. One course. *Brown*

231. Structural Engineering Analysis. A study in depth of a number of classical topics in structural analysis, such as elastic arch design; plasticity and limit design; numerical and approximate methods of beam deflection analysis. Computer solutions of structural problems. One course. *Brown*

232. Reinforced Concrete Design. A critical review of research related to the development of existing codes. Special attention is given to the consideration of temperature change effects, shrinkage, plastic flow, bond, and shear and diagonal tension. Two-way slab and flat plate design. Prerequisite: C.E. 133. One course. *Brown*

233. Prestressed Concrete Design. A critical review of research and recent developments in prestressed concrete design. Prestressed tanks, beams, and columns; partial prestressing and composite design. Prerequisite: C.E. 133. One course. *Brown*

234. Structural Design in Metals. Design of metal structures using both elastic and plastic theories. Application to plate girders, bridge trusses, and building frames. Interpretation and justification of building codes and specifications. Planning, preliminary design, and organization of design procedures. Prerequisite: C.E. 134. One course. *Palmer*

235. Foundation Engineering. An introduction to methods of analysis, design, and construction of foundations. Bearing capacity and settlement of shallow and deep foundations. Soil exploration; excavation and bracing; drainage and stabilization; and underpinning. Foundation vibrations. One course. *Vesic and Clough*

236. Earth Structures. An introduction to methods of analysis, design, and construction of earth structures such as dams, embankments, cuts, canals, airfield, and highway pavements. Selection of materials, soil compaction, and stabilization. Theory of seepage, design of wells and drainage collectors. Slope stability and related problems. Theory of layered systems and pavement design procedures. One course. *Clough*

238. Rock Mechanics. Behavior and properties of rock as an engineering material; failure of rock. Design and construction of underground structures and slopes in rock; design of rock abutments for dams. Laboratory and field rock testing techniques. Prerequisite: C.E. 139 or consent of instructor. One course. *Clough*

241. Environmental Engineering Chemistry and Biology. Inorganic and organic chemistry as applied to water and wastewater treatment. Chemical equilibria and kinetics. Population dynamics and energy transfer in metabolic systems. Instrumental analysis, including spectrophotometry, chromatography, and atomic adsorption. Atmospheric chemistry and analytical methods. Prerequisite: C.E. 124. One course. *Drye*

243, 244. Sanitary Engineering Unit Operations and Process Design. Fundamental bases for design of water and waste treatment systems, including transport, mixing, sedimentation and filtration, gas transfer, coagulation, and biotreatment processes. Two courses. *Vesilind*

247. Air Pollution Control. The problem of air pollution, with reference to chemical and biological effects. Measurement and meteorology of air pollution. Air pollution control methods. Noise pollution, odor, and air pollution law. One course. *Vesilind*

248. Solid Waste Management. Collection, treatment, and disposal of solid wastes from wastewater treatment. Filtration and centrifugation theory and application. Pumping of solid-liquid mixtures. Sludge conditioning by chemicals and heat. Sludge combustion, pyrolysis, and drying. Application of systems analysis to collection of municipal refuse. Sanitary landfills and incineration of solid wastes. Reuse and recycling. Prerequisite: C.E. 124 or consent of instructor. One course. *Vesilind*

250. Engineering Analysis. Formulation of mathematical models selected from a wide variety of engineering disciplines; optimization; use of infinite series, finite difference calculus, energy methods, and digital computers as problem-solving techniques. One course. *J. F. Wilson*

Departmental Major in Civil Engineering

The major requirements are included in the minimum total of 32 courses listed under general requirements and departmental requirements. Specific courses which must be included are: Engineering 11 (half-course), 31, 75, 83, 123, 145; C.E. 16 (half-course), 116, 123, 124, 131, 133, 134, 139.

ELECTRICAL ENGINEERING

Professor Owen, *Chairman*; Professor Marinos, *Director of Undergraduate Studies*; Professors Artley, Kerr, Meier, Nolte, Pilkington, Thurstone, and Wilson; Visiting Professor Trickey; Associate Professors Hacker, Joines, and Wang; Adjunct Associate Professor Lontz; Assistant Professor George

Electrical Engineering is a broadly based discipline dealing with the processing, control, and transmission of information and energy by making use

of the electrical and magnetic forces of nature. A partial listing of in-depth technical programs possible under the electrical engineering curriculum at Duke follows: communication systems, computer systems design, information science, electronics-networks, electromagnetics, physical electronics, control systems, energy conversion, applied mathematics, and applied physics. Students with other interests such as premedicine, prelaw, computer science, management, economics, art and music, psychology and social systems may also be accommodated within the curriculum. These programs are individually designed and, in addition to stressing the acquisition of specific skills and methods, seek in both the classroom and laboratory to stimulate students to think creatively in terms of fundamental concepts.

Opportunities for research and project work are available in the following research and teaching laboratories: The Solid State Sciences Laboratories are concerned with both the microscopic and macroscopic properties of materials with emphasis on electric and magnetic phenomena such as magnetic susceptibility, paramagnetic, resonance, electrical conductivity, and magnetic ordering transitions. In the Thin-Films Laboratory investigations are directed toward physical properties of thin films which provide bases for applications in electronic and computer systems. The Electronics Laboratory is used for the study of the physical behavior of basic electronic components and of advanced electronic devices and circuits. The Energy Conversion Laboratory is concerned with the generation, transformation, and control of energy in large-scale power systems and small self-contained systems. The Automatic Control Systems Laboratory deals with the principles underlying instrumentation and control of physical processes. The Spacecraft Systems Laboratory combines all phases of electrical engineering in solving problems encountered in modern spacecraft technology. The Controlled Personal Environment Laboratory provides experiential learning activities directed to the understanding of the self and the interaction of the self with others and a carefully controlled physical environment. The Machine Intelligence Laboratory is concerned with the design of adaptive and learning control systems for various applications. In the Electromagnetic Waves Laboratory studies are made of microwave networks and the interaction of electromagnetic waves with biological systems. The Minicomputer Laboratories provide the opportunity for hands-on experience in the operation of two small computers in an instructional and research environment. The Digital Systems Laboratories are utilized for research and instruction in digital systems design and simulation. The Adaptive Information Processing Laboratory is concerned with the formulation; and performance evaluation of adaptive algorithms for extracting signals and information from noise.

11, 12. Undergraduate Research in Electrical Engineering. An elective program in which undergraduate students participate in an ongoing program of research with electrical engineering faculty members. The research topic pursued by the student is arranged by mutual agreement between the student and the participating faculty member. For freshmen only. Fall and spring semesters. One-quarter course. *Staff*

42. Introduction to Digital Systems. A course designed for students who have no previous exposure to switching (Boolean) algebra. Its main objective is to introduce basic notions of switching algebra and to demonstrate the application of these concepts to digital systems design. The operational characteristics of major digital subsystems such as memories, central processing elements, arithmetic units, and input/output devices are discussed in detail, and a general-purpose digital computer system with a

simple architecture is functionally analyzed. Selected laboratory work is required. Fall and spring semesters. (Listed also as Computer Science 42.) One course. *Marinos and Owen*

43. Electronic Instruments and Devices. The theory of operation and applications of electronic instruments and devices most commonly used by scientists and engineers are presented. Topics include: d.c. and a.c. circuits, transducers, measurements, diode and transistor applications, operational amplifiers, and radiation detectors and generators. Three class sessions and one computation or laboratory session. Prerequisite: Math. 31. May not be taken concurrently with or after E.E. 63. Spring semester. One course. *Joines*

51, 52. Undergraduate Research in Electrical Engineering. For sophomores only. See E.E. 11, 12. Fall and spring semesters. One-quarter course. *Staff*

63. Electric Networks. Complete analysis (transient and steady state) by transform methods of linear lumped parameter networks. Application of modern analysis techniques to contemporary electrical engineering problems. Laboratory included. Prerequisites: Math. 32 and Physics 51 or permission of instructor. Fall and spring semesters. One course. *Kerr and Wang*

101, 102. Undergraduate Research in Electrical Engineering. For juniors only. See E.E. 11, 12. Fall and spring semesters. One-quarter or one-half course. *Staff*

103. Introduction to Nonlinear Network Theory. Introduction to theory and techniques for analysis and synthesis of nonlinear circuits. Characterization of 2-, 3-, and n-terminal nonlinear network elements. Laws for interconnecting elements and determining equilibrium equations. Operating points, driving-point and transfer-characteristics plots. Graphical and numerical analysis and synthesis of d.c. and a.c. nonlinear resistive functional networks. Nonautonomous first-order nonlinear networks, and autonomous second-order nonlinear networks. Method of isoclines. Some laboratory and computer simulations. Prerequisite: E.E. 63. Fall semesters. One course. *Wilson*

113. Introductory System Theory. Modeling of physical systems and mathematical representations of dynamic systems. The concept of states, inputs, outputs, and systems. Classification of systems and types of input; Fourier series and transforms. Solutions of vector differential and difference equations. Properties of multivariable systems, equivalent representation and minimum realization of a transfer function matrix. Introduction to stochastic systems. Analog and digital computer simulation. Prerequisites: E.E. 63 and Math 103. Fall and spring semesters. One course. *Kerr and Wang*

143. Fields and Continua. This course introduces the physical concepts used in the description of fields and continua and relates these concepts to mathematical descriptions which permit a quantitative treatment of phenomena of interest to the engineer. Physical fields include: fluid flow, thermal (heat flow), radiation, electric, magnetic, electromagnetic, and stress-strain fields. Laboratory and computer applications will be used to assist in the learning of the material. Prerequisites: Math. 104 or 111 and Physics 52. Spring semester. One course. *Artley and Joines*

151, 152. Undergraduate Research in Electrical Engineering. For seniors only. See E.E. 11, 12. Fall and spring semesters. One-quarter or one-half course. *Staff*

155, 156. Special Topics in Electrical Engineering. Study of selected

topics in electrical engineering tailored to fit the requirements of a small group. Prerequisites: approval of the Director of Undergraduate Studies and the instructor. Each half-course or one course. *Staff*

157. Introduction to Switching and Automata Theory. This course introduces the techniques for the analysis and design of combinational and sequential networks. Discrete mathematical systems; elements of code theory; threshold logic; functional decomposition; minimum-complexity combinational and sequential networks; asynchronous and clocked sequential systems; iterative switching structures; Turing machines; and fault diagnosis techniques. Selected laboratory work. Usually open to juniors and seniors. Fall semester. (Listed also as Computer Science 157.) One course. *Marinos*

161. Electronic Circuits. Graphical and mathematical modeling of electronic devices such as diodes, bipolar-junction and field-effect transistors, and vacuum tubes; techniques for the analysis and design of electronic circuits with emphasis on graphical, piece-wise linear, and small-signal methods; applications of these methods to particular circuits, including regulators, bias-point stability, amplifiers, and switching circuits; computer simulation of electronic circuits using ECAP. Three class sessions and one computation or laboratory session. Prerequisite: E.E. 63. Spring semester. One course. *Wilson*

162. Electromechanical Energy Conversion. Principles of energy storage and conversion utilizing magnetic and electric fields; analytical treatment of dynamic equations of motion, including the Euler-Lagrange approach; applications to the design of electromechanical transducers and rotating machines. Prerequisites: E.E. 113 and 143. One course. *Trickey*

163. Physical Electronics. Study of physical processes under the influence of electric, magnetic, thermal, and stress fields with contemporary electrical engineering applications: e.g., transistors, thermoelectric energy converters, and magnetic devices. Three class sessions and one computation or laboratory. Prerequisite: E.E. 143. One course. *George and Hacker*

164. Electromagnetic Fields and Waves. Electric and magnetic fields; Maxwell's equations developed from Coulomb's, Ampere's and Faraday's laws and the solenoidal nature of the magnetic field; electrostatics; magnetostatics; quasistatic, and stationary fields; electromagnetic waves; retarded potential; relaxation time, reflection, polarization, and radiation of electromagnetic waves; transmission lines; probability waves in periodic structures. Three class sessions and one computation or laboratory. Prerequisite: E.E. 143. One course. *Artley and Joines*

167. Design Colloquium. A course planned to guide the student in learning how the fundamental principles studied in the academic program are translated into the realities of engineering practice. The vehicle will be an extensive and intensive study of a significant modern engineering project. Extensive reference to published information and possible site visits to the projects will be part of the mode of operation, as will written and oral reports. One course. *Meier*

173, 174. Projects in Electrical Engineering. A course which may be undertaken only by seniors who are enrolled in the Graduation with Distinction program, or who show special aptitude for individual project work. Consent of the Director of Undergraduate Studies required. Elective for electrical engineering majors. Half-course to two courses. *Staff*

185. Pulse and Digital Electronics. Generation and shaping of waveforms

encountered in information processing systems, such as radar, computer, control, and instrumentation. Typical circuit functions included are linear and nonlinear wave shaping, pulse and time-base generation, time delay, counting, and gating. Emphasis on the application of semiconductor devices to the realization of circuit functions. Three class sessions and one computation or laboratory session. Prerequisite: E.E. 161. One course. George

186. Modulation Systems and Noise. Analysis and design of modulation systems. Description of deterministic and probabilistic signals; power spectra; sampling theory; amplitude-, frequency-, and pulse-modulation systems, and pulse-modulation techniques. Sources and characteristics of noise; comparison of various modulation techniques; comparison of various modulation systems. Selected laboratory work. Prerequisite: E.E. 161. One course. Nolte and Wang

187. Electronic Processes in Materials. Prediction and explanation of the response of ferroelectric, magnetic, superconductor, and semiconductor materials to thermal, electric, magnetic, and stress fields. Exploration of possibilities of improving the materials. Three class sessions and one computation or laboratory. Prerequisite: E.E. 163. One course. Hacker

188. Dynamics of Electrochemical Energy Conversion. An analytical and experimental study of the dynamic characteristics of electromechanical energy conversion devices that are utilized in both control and power applications. Three class sessions and one three-hour laboratory. Prerequisite: E.E. 162. One course.

196. Microwaves and Quantum Electronics. A study of the special field and circuit techniques required at microwave frequencies; electromagnetic wave propagation in unbounded and bounded media; transmission and reflection properties of various microwave networks. Equivalent circuits and matrix methods will facilitate analysis. Discussion of microwave amplifiers and oscillators, including klystrons, magnetrons, traveling-wave tubes, and masers. Selected laboratory experiments. Three class sessions and one computation or laboratory. Prerequisite: E.E. 164. One course. Joines

199. Linear Control Systems. Analysis and design of linear, continuous, and sampled data control systems. Feedback principles and servomechanisms. Stability criteria and tests; performance specifications. Regulation and control from a state variable viewpoint; system constraints and performance optimization; system sensitivity to noise and parameter variations. Laboratory simulations on analog and digital computers. Prerequisite: E.E. 113 or permission of instructor. Spring semester. One course. Kerr and Wang

203. Random Signals and Noise. Introduction to mathematical methods of describing and analyzing random signals and noise. Review of basic probability theory; joint, conditional, and marginal distributions; random processes. Time and ensemble averages, correlation, and power spectra. Optimum linear smoothing and predicting filters. Introduction to optimum signal detection and parameter estimation. Fall semesters. (Listed also as Computer Science 203.) One course. Kerr and Nolte

204. Information Theory and Communication Systems. Information and entropy and their application in communication situations. Noise and channel capacity, coding, and the fundamental theorem of information theory. Continuous channels and transmission of band-limited signals. Comparisons of various practical modulation techniques from the standpoint of information rate and error probability. Spring semesters, 1976, 1978. Prerequisite: E.E. 203. One course. Marinos and Nolte

205. Signal Detection and Extraction Theory. Introduction to signal detection and information extraction theory from a statistical decision theory viewpoint. Subject areas covered within the context of a digital environment are decision theory, detection and estimation of known and random signals in noise, estimation of parameters and adaptive recursive digital filtering, and decision processes with finite memory. Applications to problems in communication theory. Spring semesters. (Listed also as Computer Science 205.) Prerequisite: E.E. 203 or permission of instructor. One course. *Nolte*

208. Digital Computer Design. Hardware implementation of combinational and sequential switching networks. Arithmetic elements, switching matrices, character generators, counters, and shift registers. Detailed design and simulation of a general-purpose computer system. Computer architectures based on macromodules, hardware compiler implementations, and parallel processing concepts are also covered. Selected laboratory work is required. Spring semesters. Prerequisite: E.E. 157 or permission of instructor. (Listed also as Computer Science 208.) One course. *Marinos and Owen*

211. Solid State Theory. A treatment of postulatory quantum mechanics and statistical mechanics to serve as a background for the solid state sciences. Topics include both the Schrödinger and matrix formulations, angular momentum, perturbation methods, Maxwell-Boltzmann and Fermi distributions. Prerequisite: permission of instructor. Fall semester. One course. *George and Hacker*

212. Solid State Materials. Concepts of solid state physics as applied to engineering materials; electric, magnetic, thermal, and mechanical properties of solids; dielectrics; semiconductors; magnetic materials; superconductors. Prerequisite: E.E. 211. Spring semester. One course. *Artley and Hacker*

213. Principles of Magnetism. A discussion of the various classes of magnetic materials including diamagnets, paramagnets, ferromagnets, antiferromagnets, and ferrimagnets. Typical topics include: crystal field effects, exchange interactions, domain formation, and resonance phenomena. Prerequisite: permission of instructor. One course. *Artley and Hocker*

215. Semiconductor Physics. A quantitative treatment of the physical process that underlie semiconductor device operation. Topics include: band theory and conduction phenomena; equilibrium and nonequilibrium charge carrier distributions; charge generation, injection, and recombination; drift and diffusion processes. Prerequisite: E.E. 211 or permission of instructor. One course. *Hocker*

217. Masers. Principles of masers, particularly optical masers. Discussion of quantum electronics, optical configuration; solid state, gaseous, and liquid devices; modulation; high power operation. Two class sessions and laboratory. Spring semesters, 1975, 1977. Prerequisite: permission of instructor. One course. *George*

221. Nonlinear Networks and Systems. Characterization of nonlinear multi-terminal network elements, formulation of system equations from topological and energy considerations. Basic properties and general methods of solution of resistive nonlinear networks. Time-varying linear systems. Examination of some fundamental properties of nonlinear differential equations. Fall semester. One course. *Wilson*

222. Nonlinear Analysis. Introduction to methods of analyzing engineer-

ing systems described by nonlinear differential equations: analytic, numerical, graphical, and series approximation methods; analysis of singular points; stability of nonlinear systems. Applications of various methods, such as the modified Euler, Runge-Kutta, isoclines, perturbation, reversion, variation of parameters, residuals, harmonic balance, Bendixon, and Liapounov to phenomena of nonlinear resonance, subharmonics, relaxation oscillations, and forced oscillating systems. Spring semester. (Listed also as M.E. 232.) One course. *Wilson*

224. Integrated Electronics: Analog and Digital. Application of integrated circuits for analog and digital systems. Topics include the effect of fabrication techniques on circuitry design, a study of differential and operational amplifiers, and consideration of various logic families such as resistor-transistor logic (RTL), diode-transistor logic (DTL), current-mode or emitter-coupled logic (ECL), and transistor-transistor logic (TTL). Prerequisite: E.E. 161 or equivalent. Fall semester. One course. *Wilson*

225. Semiconductor Electronic Circuits. Analysis and design of electronic circuits utilizing a variety of static and dynamic models of semiconductor devices. Transistor and other semiconductor device circuit models; bias stability; high frequency and noise models; switching characteristics; illustrative semiconductor circuits. Selected laboratory work. Spring semester. Prerequisite: E.E. 161 or permission of instructor. One course. *George*

227. Network Synthesis. Linear network theory, including a review of time and frequency domain analysis; network graphs; network functions and realizability condition; driving point impedance synthesis of passive networks; driving point and transfer specifications; approximation methods. Fall semesters, 1975, 1977. Prerequisite: permission of instructor. One course. *George*

242. Modern Control and Dynamic Systems. See course description for M.E. 230. (Listed also as M.E. 230.) One course. *Wright*

243. Advanced Linear Systems Theory. Linear spaces and linear operators, mathematical description of systems, controllability and observability of Jordan form dynamical equations; multivariable and composite systems; state feedback and state estimators, equivalent systems, and minimal realizations. Observer theory. Design of poleplacement compensators. Study of technical papers from various journals. Prerequisite: E.E. 242 or equivalent. Fall semester. One course. *Wang*

259. Advanced Electric Energy Conversion. Equations of motion of electromechanical systems; fields and lumped parameters, and state function concepts; mathematical techniques for analyzing electromechanical devices and systems; transducers; unified treatment employing matrix, tensor, and block-diagram concepts to obtain response under static and dynamic conditions; the generalized rotating machine. Prerequisite: permission of instructor. One course. *Trickey*

265. Advanced Topics in Electrical Engineering. Opportunity for study of advanced subjects related to programs within the Electrical Engineering Department tailored to fit the requirements of a small group. Prerequisites: approval of the Director of Undergraduate Studies and of instructor under whom work will be done. One course. *Staff*

266. Biofeedback Systems. Instrumentation, on-line computer analysis, and models associated with biofeedback systems. Selected readings will be considered in conjunction with experience in laboratory feedback practices. The physical, physiological, and psychological aspects of biofeedback

provide a vehicle for experiential learning which relates individual experience to models used in systems theory, field theory, electronics, and communications. Undergraduate electrical engineering majors may not use this course as one of their 4 electrical engineering elective courses. Prerequisite: permission of instructor. Spring semester. One course. Artley

271. Electromagnetic Theory. The classical theory of Maxwell's equations; electrostatics, magnetostatics, boundary value problems including numerical solutions, currents and their interactions, and force and energy relations. Three class sessions. Fall semester. Prerequisite: permission of instructor. One course. Joines

272. Application of Electromagnetic Theory. Propagation of electromagnetic waves in various structures and media; mathematical description of microwave networks, including equivalent circuits and matrix methods; microwave circuit theorems and synthesis techniques. Selected laboratory experiments. Spring semesters 1976, 1978. Prerequisite: E.E. 271. One course. Joines

Departmental Major in Electrical Engineering

The major requirements are included in the minimum total of 32 courses listed under general requirements and departmental requirements. The specific courses E.E. 63, 113, and 143 must be included.

MECHANICAL ENGINEERING

Professor Chaddock, *Chairman*; Associate Professor Shepard, *Director of Undergraduate Studies*; Professors Garg, Harman, Kenyon, Linderth, Macduff, and Pearsall; Adjunct Professor Roberts; Associate Professors Clark, Cocks, and Elsevier; Assistant Professors Buzzard, Munson, and Wright

Mechanical engineering is the branch of engineering which is broadly concerned with energy. It is the task of mechanical engineers through research, development, design, and manufacturing activities to conceive, plan, construct, improve, test, and produce a wide variety of devices, machines, and systems. The products of these efforts largely fall into one of the following classifications: the production of work energy in power-generating machines and engines, and the economical use of energy to accomplish a desired task or fill a human need.

The range of activities in mechanical engineering is probably the broadest of any of the engineering branches. Examples of some areas of instruction and research by the departmental faculty may serve to illustrate this scope of the mechanical engineering profession. These include: automatic control, computer techniques for simulation and design, biomechanics, thermal environment engineering, heat and mass transfer, fluid mechanics, propulsion, fuel cells, solar energy utilization, vibration and sound control, transportation technology, ocean engineering, combustion engines, nuclear engineering, and aerodynamic stability, as well as a substantial program in materials science and engineering, particularly alloy development, corrosion, and polymer science.

The curriculum in mechanical engineering provides for specific instruction in the basic sciences and mathematics, engineering science, analog and digital computers, laboratory experience, social sciences and humanities, mechanical design, systems theory, and engineering applications involving analysis, synthesis, and design. The breadth of mechanical engineering as a profession and the diverse interests of students are provided for through course elec-

tives. Project-type activities for juniors and seniors give an opportunity for the student to participate directly in research and design activities of the faculty.

Undergraduate laboratories provide unique learning experiences and assist in the development of professional attitudes and approaches to typical engineering problems. In the System Dynamics Laboratory, fundamentals of instrumentation and dynamic responses are introduced through simulation techniques. The Materials Laboratory has equipment for the preparation, testing, and microscopic examination of metals, polymers, ceramics, as well as naturally occurring materials. Experiments in the Fluid Mechanics and Heat Transfer Laboratories relate velocity and temperature field measurements to fluid friction and heat exchange processes. In the System Response and Control Laboratory computer simulation of feedback systems and familiarization with associated hydraulic and pneumatic automatic control components is emphasized. Seniors can elect an individual study project which often requires the planning and design of experiments.

31. Engineering Applications of Digital Computation. Elements of automatic computation with emphasis on digital machines and use of FORTRAN programming language. Reduction of physical phenomena to mathematical models and solution of resulting equations using digital computers. Programming problems drawn from areas of engineering including basic physics and mathematics. One course. *Buzzard and Garg*

65. Contemporary Problems in Mechanical Engineering. Study of contemporaneous topics in mechanical engineering arranged in a seminar format. Prerequisites: permission of the instructor and Director of Undergraduate Studies. Each, half-course or one course. *Staff*

101. Thermodynamics. An introduction to both classical and statistical thermodynamics. The laws of classical thermodynamics are presented and applied to open and closed systems. Continuum properties, processes, and cycles are included. Molecular distribution and property evaluation, especially entropy, are considered from the statistical and quantum viewpoints. Prerequisites: Physics 51 and Math. 103. One course. *Harman, Elsevier, and Kenyon*

102. Thermodynamics II. Continuation of the study of the basic laws and processes of thermodynamics with emphasis on energy conversion and property evaluation. Included are combustion and chemical equilibrium, gas mixtures and psychrometrics, and power cycles. Prerequisite: M.E. 101. One course. *Elsevier*

111. Physical Metallurgy. Extension of the principles of Engineering 83 to the metallic state; atomic, experimental, and thermodynamic approaches to metallurgy; phase transformations and hardening mechanisms, relationships between the structure of alloys and plastic behavior with emphasis on engineering alloy systems. Prerequisite: Engineering 83. One course. *Shepard, Cocks, and Pearsall*

112. Polymer Science. Extension of the principles of Engineering 83 to high molecular weight polymers, especially those which have significant engineering applications; structure and properties of polymers; polymerization mechanisms; properties of commercial polymers; polymer processing. Prerequisite: Engineering 83. One course. *Clark and Pearsall*

123. Dynamics. General principles of dynamics as applied to particles, rigid bodies, and selected nonrigid systems with emphasis on the formulation of engineering problems. Absolute and relative motion analysis. Work-energy and impulse-momentum methods. Introduction to kinematics and kinetics in

three dimensions and to Lagrange's equations using generalized coordinates. Prerequisites: Physics 51, Math. 103, and Engineering 75. One course. *Macduff and Wright*.

126. Fluid Mechanics. An introductory course emphasizing the application of the principles of conservation of mass, momentum, and energy to a fluid system. Physical properties of fluids; dimensional analysis and similitude, viscous effects and integral boundary layer theory; subsonic and supersonic flows; normal shock waves. Selected laboratory work. Corequisites: M.E. 123 and 101. One course. *Munson*

135. Vibration Control. An introduction to the dynamics of mechanical systems; equilibrium, stability, and lumped and distributed systems. System analysis by classical differential equations, mechanical impedance, and computer methods. Prerequisites: Math. 103, and Engineering 72. One course. *Macduff*

136. Response of Systems. System design for optimum dynamic response. Development of mathematical models from physical systems, operational and computer techniques, matrix methods for lumped and distributed systems, instrumentation and testing of components and systems, effect of nonlinearities. Prerequisites: Math. 111, M.E. 123, and Engineering 72. One course. *Macduff and Wright*

141. Mechanical Design I. A study of the broad aspects of mechanical design starting with the creative process and considering the effects of economics, human factors, ethics, and prior art on design. Basic mechanical components such as gears, cams, bearings, springs, shafts, etc. will be introduced in the discussions so that the student will become familiar with their design and application. A term design project will serve to practice the application of the design process. Prerequisite: M.E. 123. One course. *Linderoth*

142. Kinematics and Dynamics of Machinery. Study of the geometry of mechanisms. An introduction to the mathematics of gears, cams, linkages, and intermittent motion devices. The kinematics and kinetics of linkages. Computer solutions for linkage problems. Prerequisite: Math 73. Corequisite: Engineering 123. One course. *Linderoth*

143. The Design of Machine Elements. The detail design of machine elements. Study of the problems of stress and strain (deflections) as they affect and modify design requirements. Reliability and safety as design parameters. Prerequisite: M.E. 141. One course. *Linderoth*

150. Heat and Mass Transfer. Study of the mechanisms of heat transfer processes. Steady and transient conduction in solids, numerical, and graphical methods; heat exchanger design, performance; thermal radiation; convective processes, turbulent and laminar flow, steady and transient diffusion, and mass transfer between phases. Selected laboratory work. Prerequisites: M.E. 126 and Math. 111. One course. *Chaddock and Buzzard*

153. Heating, Air Conditioning, and Refrigeration. Principles of thermodynamics, heat transfer, and fluid flow applied to comfort and industrial air conditioning. Cycles and equipment for heating, cooling, and humidity control. Air transmission and distribution. Modern vapor compression, absorption, and low temperature refrigeration cycles and systems. Prerequisite: M.E. 101. One course. *Elsevier*

156. Combustion Engines. A study of cycles, fuels, and fuel mixtures in piston, ram jet, and rocket engines. Comparison of real and theoretical

cycles; carburetion and fuel injection systems; and modern developments. Prerequisite: M.E. 101. One course. *Elsevier*

165, 166. Special Topics in Mechanical Engineering. Study arranged on a special engineering topic in which the faculty has particular interest and competence as a result of research and professional activities. Prerequisites: permission of the instructor and Director of Undergraduate Studies. Each, half-course or one course. *Staff*

173. Ocean Engineering. An introductory course to acquaint the student with the basics of physical and chemical oceanography and the need for and application of engineering knowledge and methods to the design and operation of structures, vehicles, and communications systems for use on and in the oceans. Prerequisite: junior standing in any department. One course. *Linderoth and Muga*

177. Computer Techniques for Simulation and Design. Optimization methods for engineering design. Unconstrained and constrained minimization procedures with linear programming shown as a special case of the gradient projection method. Computer solutions and design projects emphasized. One course. *Wright*

182. Fundamentals of Nuclear Engineering. Review of nuclear physics, nuclear interactions and cross sections, neutron induced chain reactions, shielding, hazards, isotope utilizations, reactor systems, and power reactors. Prerequisite: permission of instructor. One course. *Kenyon*

183. Power Plants. Basic concepts of thermodynamics, heat transfer, and fluid flow are combined with industrial data for the consideration of real power plant problems. Selection of steam generators, prime movers, fans, pumps, heaters, and piping systems with regard to engineering, economic, and environmental points of view. One course. *Kenyon*

197, 198. Projects in Mechanical Engineering. This course may be assigned by the chairman of the department to outstanding seniors who express a desire for such work and who have shown aptitude for research in one distinct field of mechanical engineering. Prerequisites: B average and senior standing. Half-course to two courses. *Staff*

202. Theoretical Thermodynamics. Classical thermodynamics and thermodynamics continuum properties for real substances, equilibrium, and introduction to statistical thermodynamics. One course. *Harman*

210. Intermediate Dynamics. Comprehensive treatment of space kinematics, kinetics of particles and rigid bodies; generalized coordinates and Lagrange's equations; introduction to stability and random dynamic analysis of flexible, continuous systems. (Listed also as Civil Engineering 210.) One course. *J. F. Wilson and Macduff*

211. Theoretical and Applied Polymer Science. An advanced course in materials, science and engineering, dealing specifically with the structure and properties of polymers. Particular attention is paid to recent developments in the processing and use of modern plastics and fibers. Product design is considered in terms of polymer structures, processing techniques, and properties. One course. *Pearsall and Clark*

213. Advanced Materials Science. An in-depth study of current problems in materials applications conducted in a seminar format. Treatment will include thermal, electrical, optical, and magnetic properties of materials in terms of basic physical concepts. Subject intended to provide materials scien-

tists and engineers with a theoretical basis for understanding and manipulating properties. Prerequisites: Engineering 83 and M.E. 111 or 112. One course. Cocks, Pearsall, and Shepard

214. Environmental Factors in Materials Science. Effects of environments on the design and utilization of modern engineering alloys. Theory and mechanisms of corrosion, particularly in seawater and atmospheric environments. Microstructural aspects of diffusion, oxidation, hot corrosion, and stress corrosion. Prerequisite: Engineering 83. One course. Shepard and Cocks

215. Failure Analysis and Prevention. A study and analysis of the causes of failure in engineering materials and the diagnosis of those causes. Elimination of failures through proper material selection, treatment, and use. Case histories. Examination of fracture surfaces. Laboratory investigations of different failure mechanisms. Prerequisite: Engineering 83 or permission of instructor. One course. Cocks

221. Compressible Fluid Flow. The concepts and analysis for flow of gases in subsonic to hypersonic regime. Two-dimensional flow; oblique shocks; experimental techniques. One course. Harman and Munson

222. Heat Transfer. Steady-state and transient solutions of the general heat conduction equation. Development of the equations for transport of energy by fluid motion. Principle of similarity and dimensional analysis in convective energy transport. Solutions of the boundary layer equations. The laws of radiation heat transfer and radiation heat exchange. One course. Chaddock and Buzzard

226. Intermediate Fluid Mechanics. A survey of the principal concepts and equations of fluid mechanics. Fluid properties. Statics. Basic equations for the control volume. The differential equations of fluid motion. Stream function. Irrotational flow. Navier-Stokes equations. Kelvin's and Crocco's theorem. Applications to two-dimensional incompressible potential flow and to viscous flow in boundary layers. One course. Munson

230. Modern Control and Dynamic Systems. The statespace point of view is used as a vehicle to integrate the classical control and modern systems techniques. Topics include vector differential equations, modal matrix transformation, modified canonical forms, and controllability and observability concepts. Also system stability and mathematical modeling methods for lumped- and distributed-parameter systems. Modal control of multivariable control systems. One course. Wright

231. Systems Response and Control. Methods, applicable to design, of obtaining parameters for strength, response, and stability studies of mechanical systems. Analysis of closed loop control systems with linear transfer functions; electrical and mechanical analogs; introduction to determination of transfer function from input-output characteristics. One course. Macduff and Wright

232. Nonlinear Analysis. Introduction to methods of analyzing engineering systems described by nonlinear differential equations: analytic, numerical, graphical, and series approximation methods; analysis of singular points; stability of nonlinear systems. Applications of various methods, such as the modified Euler, Runge-Kutta, isoclines, perturbation, reversion, variation of parameters, residuals, harmonic balance, Bendixon, and Liapounov to phenomena of nonlinear resonance, subharmonics, relaxation oscillations, and forced oscillating systems. Fall semesters. Prerequisite: permission of instructor. (Listed also as E.E. 222.) One course. T. Wilson

233. Fluid Control Systems. A design oriented course concerned with

hydraulic and pneumatic feedback control systems. Basic control system characteristics; linearized transfer functions; determination of transfer function from computation and experiment; position, velocity, and acceleration feedback devices; transducers; d.c. and a.c. hydraulic and pneumatic amplifiers. One course. *Macduff and Munson*

235. Advanced Mechanical Vibrations. Analytical and experimental procedures applied to design of machines and systems for adequate vibration control. Determination of eigenvalues and eigenvectors by iteration and computer techniques; transfer matrices applied to lumped and distributed systems; analytical and numerical methods of obtaining the pulse response of plane and three dimensional multi-mass systems; convolution and data processing; introduction to random vibration. One course. *Macduff*

236. Engineering Acoustics and Noise Control. Specification of the physical properties of noise, noise measurement, and absorption, transmission, and propagation of sound. Effects of noise on man, noise exposure, and damage risk criteria. Legal aspects of noise control, source modification, enclosures, barriers, and personal protectors. Prerequisites: M.E. 123 and Math. 111. One course. *Macduff*

251. Refrigeration and Cryogenics. Theory and experiment in the evaluation of the thermodynamic properties of refrigerants and cryogenic fluids. Thermodynamics of vapor compression, air cycle, absorption, and thermoelectric refrigeration. Production of low and very low temperatures, helium liquifiers. Two-phase flow processes. Heat exchange for refrigeration and cryogenic transfer. One course. *Chaddock*

255. Energy Conversion. Principles, thermodynamics, and classification of energy conversion devices. Introduction to semiconductors, thermoelectric generators, photovoltaic generators, thermionic generators, magnetohydrodynamic generators, fuel cells, and other energy conversion devices. One course. *Harman*

265. Advanced Topics in Mechanical Engineering. Opportunity for study of advanced subjects related to programs within mechanical engineering tailored to fit the requirements of a small group. Prerequisites: approval of the Director of Undergraduate Studies and the instructor under whom work will be done. One course. *Staff*

270. Theory of Lubrication and Bearing Design. A study and analysis of the theory of hydrodynamic and hydrostatic lubrication will be presented. The dynamics of bearing loading, bearing design, and materials will be examined in their relationships to the theory of lubrication. Properties of lubricants will be reviewed. The student will have ample opportunity to put theory into practice with real bearing problems taken from industrial machinery, construction equipment, transportation media, and wherever relative motion is required between adjacent surfaces. One course. *Linderoth*

280. Nuclear Reactor Power Cycles. Basic reactor principles and types. Examination of most feasible thermodynamic cycles for use with both stationary and mobile power plants. Consideration of safety shielding, heat transfer, fluid flow, and materials problems unique to reactor design. One course. *Kenyon*

Departmental Major in Mechanical Engineering

The major requirements are included in the minimum total of 32 courses listed under general requirements and departmental requirements. Specific courses which must be included are: Engineering 72, 75, 83; M.E. 101, 123, 136, 141, and either M.E. 126 and 150, or M.E. 111 and Engineering 122.

Appendix

DEGREES AWARDED MAY 13, 1973

Bachelor of Arts

Frank Anthony Abetti	Jayne McGuire Booker	Richard Dexter Clarke
David Lane Adams	Janice Carol Boon	Martha Jane Clayton
William Hester Adams IV	Joseph Cord Bosch	Joan Leigh Cobb
Kambix Afrachteh	John Angelo Boscia	Stephen Michael Cohen
Gregory James Agamy	Catherine Stuart Boshier	Anne Pierce Mercer Colantuono
James Francis Akers	Jeffrey Ralph Boswell	Thomas Paul Colantuono
Richard John Alampi	James Thomas Bowman	Jeffrey David Colby
John Clair Alexander III	Joel Edd Boyd	Sharon L. Coldren
Louise Macy Allatt	James Keith Bradley	Nan Lou Coleman
Peter John Allatt, Jr.	Robert Clark Bradley, Jr.	William Latimer Coleman
Talmage Allen	Suzanne Elizabeth Braley	Sheeley George Coley, Jr.
Celia Lee Allman	Thomas Marshall Brandt, Jr.	Leonard Bruce Collard
Jose Francisco Alvarez	John Thomas Brennan, Jr.	Karen Ann Colwell
Sandra Jean Ambrose	David Elliott Bright	Robert Forest Coman
Janet Ellen Amriati	Robert Herman Brinkmeyer, Jr.	Elizabeth Ann Connor
David Bruce Anderson	Judy Diane Brinson	Carolyn Ann Cook
Mark Michael Anderson	Peter Edwin Broadbent, Jr.	Robert Douglas Cook
Robert Homer Anderson III	Janet Brooks	Darryl Keith Corriher
Julie Ann Andreson	Darrell Howard Brookstein	Wiley Simeon Cozart, III
Ruth Carlene Ange	Michael Heath Browder	Richard Morton Crafts, Jr.
Catherine Ann Angell	Eric Ross Brown	Cynthia Ann Craig
James Bryan Archbell	Mary Jane Brown	Stephen Clarkson Crane
Christine Megan Armstrong	Pamela Grace Brown	Richard Riker Crater
Louise Denis Armstrong	Paul Jeffrey Brown	Barbara Cronin
Pamels Whiteside Armstrong	Kathryn Anne Browne	Paula Connor Crouch
Paulette Keith Arnold	William Francis Bultman, III	Anne Cunningham
Mary Penelope Henderson	Charles Ivy Bunn, Jr.	Henry Vernon Cunningham, Jr.
Askew	William M. Burdett	Lee Corbitt Currin
William Goranflo Aten, III	Barbara Burke	Gary Michael Curtis
John David Atkins	Eleanor Chandler Burke	Richard Edmund Cytowick
Randall Whittaker Atkins	Diane Elizabeth Burkley	Joseph John Czarnecki
Samuel John Atlee	Stephen Joseph Burns	Michael Alan Dailey
David Maurice Audet	Laura Virginia Butler	Anne Ellsworth Dantzler
Paul Stuart Auerbach	Tula Patricia Cahoon	Jeffrey John Davidson
Tony L. Axam	David Bryan Caldwell	Lee Ann Davidson
Thomas James Baden	John Richard Caldwell, Jr.	Richard Lloyd Davies
Barbara Ann Baker	William H. Callaway, Jr.	Dale Gordon Davis
Linda Jean Barlow	Henry Clay Callihan, Jr.	Edward Marcus Davis
Donna Barnes	James Carroll Camp	Rose Marie Schleif Davis
John Coleman Barrett	Gary Paul Campanella	Willis Lawrence Davis, Jr.
Alice Jane Bassman	Sally Louise Campbell	Craig William Dawkins
Stephen Bruce Baumann	Susan Melissa Caraway	John Lockley Deal
Robert Chandlerline Bauroth	John Francis Cardarelli	Ann Chambers Deean
Philip Arnold Bayer	Gina Eleanor Capitani Carle	Cary David Dechowitz
James Robert William Bayes	James Henry Carmichael	Andrew Joseph Decker, III
Stephen Ellis Bear	James Peter Carmody	Cynthia Ann De France
Roger Oliver Beardmore	Roger Evan Carp	Dara Lyn DeHaven
Charles Rufus Beaudrot, Jr.	Gardy Sherdale Carpenter, Jr.	Eugenia Caroline DeLamotte
Linda Louise Beauregard	Virginia M. Carroll	Douglas Mason DeLong
Christopher Lane Beebe	Bruce Richardson Carter	Gary Clark Demack
Janet Lee Berg	Candace Elaine Carver	Todd William Dickinson
Thomas Charles Berg	Jude Anne Cassidy	Allison DeLime Dickson
Carlos Berrendero Perdiguero	Donald Roger Cassling	Barbara Carroll Dillon
Frank Joseph Biba	Harry Randall Chambers	Carol Sue Disque
Marilyn Christine Biggs	John Alfred Chambers	Robert Cochrane Douglas
Todd Charles Bishop	Thomas Michael Chambers	William Wallace Dreyfoos
Nanette Hahr Bishopric	Charles Fassett Chandler, Jr.	John Anthony Duff
Constance Allen Blair	Douglas Abbott Chapman	Gordon Hayes Duggins
Stephen Lenwood Blair	William John Chickering	William Claude Dunkin
Michael Edward Blake	Jack Ray Childress	Virginia Anne Dunkley
Linda June Blazer	Pamela Moy Chin	Michael Thomas Dunn
Christine Sue Blish	Eric Steven Chofnas	Elizabeth Ann Dupree
John Edward Blount	John Wortham Christian, III	Mignon Durham
Catherine Ann Blue	Susan Eileen Ciarrocca	Anne Louise Duvoisin
Michael Bennett Boger	James Craig Cifelli	James Russell Dykes
Theodore Jerry Bogosian	Thomas Conrad Clark	Samuel Williams Earle IV

Donna Jean Early
Charles William Ebel
Shelley Lynn Eberle
Richard David Edrington
Charles Henry Edwards III
Valeria Anne Edwards
Mitchell Ehrenberg
Sue Anne Eichoff
Andrew William Elder
Anne Ashton Eldridge
Martin Louis Ellin
Charles Porter Ellington, Jr.
Lucy Marie Ellis
Samuel Laird Ellis III
Michael James Ellsworth
Eugene William Ely
Richard Louis Epling
Bruce Allan Epstein
Norman Sanford Epstein
Douglas Joseph Erickson
Carolyn Crawford Evans
Cleveland Kent Evans
Douglas Keith Eyberg
Margaret Louise Fairgrieve
Joel Stephen Farkas
Eugene Albert Ferreri Jr.
Lasley Fick
Barbara Allen Field
James Eugene Field
Christopher Michaelangelo Filiaci
Keith Steven Fineberg
Karen Allen Fitzpatrick
Tone Berit Flaathen
Steven Alan Flagel
Barbara Anne Fletcher
Frank Ernest Fletcher III
Thomas Lee Flynn, Jr.
Linda Sue Fore
Laura Susan Forgeron
Mary Lyde Foster
Jean Robin Fowler
Daryl Keith Fox
Thomas Patrick Foy
Susan Watt Fraysse
Robert Edward Freeman
Baxter Parks Freeze, Jr.
Raymond Allen Frese
Carol Jane Frischmann
Janice Moore Fuller
William Edmund Furter
Judith Furman
Merrell Moore Fuson
William John Gaffey
Charles Lee Gallegos
Teresa Karen Galloway
Eric Robert Galton
Carl Linwood Gardner
Emerson Norris Gardner, Jr.
Max Lewis Gardner, Jr.
Ronald Stewart Gass
Anne Hollis Geer
Amarette Hill Gery
John Kermit Gibbons
Margaret Cora Gibson
Richard Edward Githens III
George Eddins Glasson
Durant Murrell Glover
Sarah Frances Glover
Clifford David Goalstone
James Robert Goins
Robert Goldman
John Bernard Gontrum
Anita Raye Goodman
Mark Steven Gorovoy

Howard Gray, Jr.
Patrick Hampton Gray
Bobby MacBryan Green
Frances Kay Greenberg
Elizabeth Toms Greene
Andrew Edward Grigsby Jr.
Dale Marvin Grimes
Carolyn L. Grover
Richard Gutierrez
Gali Lynn Hale
Arlyn Haig
Lucy Barrett Haislip
Jan Tore Hall
Thomas Charlton Hall III
Willard William Hall II
William Scott Hall
William Morgan Hamilton, Jr.
Helen Ann Hancock
Helen Horn Hand
Ellen Faith Hanna
Edward Marshall Hanson, Jr.
Shelley June Hanson
Milan Ernest Hapala Jr.
Dale Anne Hardesty
Clyde Durham Hardin, Jr.
Sylvia Ann Hargett
Harry Hokey Harkins, Jr.
David Serjeant Harnett
Richard Allan Harris
Thomas Burrell Harris Jr.
Patricia Louise Hart
Helen Woolford Haskell
Elizabeth Haskin
Gerald Lee Hassell
David Andrew Hawkins
William Anderson Hawley
Peter Rice Heath
Robert Melvin Hedrick
Alice Gayolyn Hege
Kathryn Leslie Heidlebaugh
James Davis Henderson
Helen Ann Herring
Carol Andrea Herron
John Fowler Heth
Billye Lynn Higdon
Julia Wheeler Higgins
Virginia Wyche Higgins
James Robert High Jr.
Joseph Francis Hildenbrand Jr.
Harriet Anne Hill
Terence Michael Hines
Thomas Eugene Hoar Jr.
Barry David Hoberman
Paul Grey Hodges
John Robert Hoehl, Jr.
Rosemary Hoffmann
Betsy Jean Hoggard
Jeffrey Westbrook Holcombe
Deborah Fran Hotch
Alison Rowcliffe Howard
Eleanor Joyce Harrington Howard
Lise Courtney McDonald Howe
Philip Hsu
Linda Gail Hudak
Karl Klaus Huebner
Doreen Louise Hughes
Rita Ann Hughes
Robert Earle Hughes Jr.
Darryl Adrian Hunnings
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William Horace Inman, II
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Gordon St. Clair Jackson, Jr.
Helen Elisabeth Jackson

John Garland Jackson
Robert Gregory James, Jr.
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Ivo Christopher Jamrosz
Jay Francis Jason
Keith Loren Jenkins
Barbara Louise Jetton
Andrew Joseph Johnroe
Frances Joanne Johnson
James William Johnson, Jr.
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Phyllis Cameron Johnson
William Bruce Johnson
Hugh Samuel Johnston
Mary Louise Johnston
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Bonnie Lynn Jones
Gregg Herbert Jones
Richard Hubert Jones
Steve Hunter Jones
Randall Athley Jordan
Terry Gregory-Patrick Kane
Peter Michael Kareiva
Daniel Karp
Neil Howe Kaufman
Thomas Earl Kehl
Particia Louise Kellett
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John Daniel Kennedy Jr.
Katharine Derrill Kennedy
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Robin Wood Kinnear
Robert Edmond Kirchner
Raymond Douglas Kiser
Larry Elliot Klayman
Michael Sherman Klein
Marilyn Ann Koch
Lawrence Edward Kowal
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Peter Richard Kramer
Stephen, Robert Kratzke
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Kip Richard Krones
Cathy Ellen Krug
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Brian Joseph Kutcher
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Hebe Lanitis
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Joy Powell Latimer
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Delphine Rollins
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Sally Smith
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John Walter Spoganz
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Mark Eric Stalnecker
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Elaine Kane Whitesides
Paul Caldwell Whitesides, Jr.
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Kurt David Winterkorn
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Jay Michael Wolfson
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Marilyn Kay Wright
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William Franklin McDaniel III
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William Joseph McEvoy
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Clyde Harry Measey
Scott Arnold Miller
Jo Ann Mills
Jeffrey Francis Mosser

Donna Lee Mothershead
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James Frederic Norcross
Gard Williams Otis
Sheryl Anne Pastryk
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Jesse Calvin Pittard
Joseph Craig Politan
Arthur Thomas Poulos
Paul Lawrence Pyle
Denis Raczkowski
Wanda Teresa Raczkowski
Charles Franklin Ramsey, Jr.
William Read Rankin
Steven Severns Ratcliffe
Mitchell Crawford Reese
Karen Mary Reimann
Curtis Lee Reynolds III
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Lee Russell Rocamora
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Julien LeRoy Dukes Salley
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Jane Shotwell Satterwhite
Rudolph Conrad Schweizer

Norman Seid
Craig Steven Shatzer
Scott Bradley Sherman
Ritchie Carr Shoemaker
John Richard Sink
Henry Grady Skelton III
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Maureen Elizabeth Smithwick
Hugo José Sotolongo
Carol Ann Springer
Elisabeth Stanger
Mark Randolph Stenerson
Carol Robin Timmons
Francis Edward Toscano
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Jennifer Lins Van Anda
Elizabeth Van Volkenburgh
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Richard Carl Wantoch
Martha Lynn White
Michael George Williamson
Michael Earl Wilsons
Peter Arthur Winkelman
Bruce Ray Woodin
Edward David Wright
Kathryn Jane Zerbe
Stuart Alan Zipper
Roberto Tullio Zori

Bachelor of Science in Engineering

Harold Russell Allison, III
Robert Ryoichi Ando
Bruce Douglas Arnold
Joseph C. Bates
Bruce Henry Battjer
Michael David Besançon
Nathaniel James Bethel
Henry Powell Betz
Walter Jeffrey Bishop
David Alan Bitner
Robert Shields Bogan
John Joseph Borgschulte
Peter Anthony Bozick, Jr.
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William Joseph Hanenberg
Ozey Knight Horton, Jr.
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Robert Anthony Knight
Steven Bruce Knisley
William Madsen Kück
Lance Leo Leonaitis
Robert Michael Lloyd
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Charles Thomas Lunson
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Scott Anderson McHugh
Larry Wade Mobley
Frederick Eugene Munschauer III
James Burnell Nicholas
Thomas Leonard Novick
Robert Ross Parker
Michael Leonard Pawlowski
Michael Ray Peeler
William Tyler Perry
Robert James Peyser
Thomas Lee Richardson
Donald Robert Riekert

Charles Lacy Ringgold Jr.
Christopher Edward Roberts
Bruce Allen Robinson
Thomas Kevin Robinson
John Francis Rodenhauser
Stephen Bruce Rogers
Anthony David Rosenthal
Charles Christopher Ross
Randall John Rost
Blair Betterton Sanders
Nicholas Ridgely Scheller
Joseph Howard Schmid
Hugo Schmidt Jr.
Louis Ott Scott
Eric Alan Sedwick
Warren Bradford Shaw
William Philip Short III
Mark Grierson Smith
Charlotte Jane Springer
James Albert Strycharz
Michael Earle Sullivan
Raymond Valdis Tiltins
Alade Olabambo Tokuta
Paul A. Vadnais
Gregory Nicholas Vaniglia
Steven Louis Viehl
David Haywood Watts
Eric Edward Weber
Lida Whitaker
Richard Alan Willet
John Adrian Williamson

Bachelor of Science in Nursing

Susan Elaine Akers
Patti Lu Alfred
Katharyn Swain Antle
Anne Marsh Armstrong
Patricia Hansen Begley
Anita JoAnne Birch
Barbara Ray Bordeaux
Mary Lucille Brameier
Linda Ruth Chambliss

Candace Damner Chase
Janet Lemen Chesson
Emily Gruelle Collini
Sharon Elizabeth Cooper
Carol Ann Crowgey
Barbara Curtis Davis
Kathleen Linda Davison
Deborah Ann Day
Susan Mizell Demack

Gail D'Onofrio
Carol Shirley Doty
Martha Ann Earhart
Barbara F. Edwards
Sandee L. Eickhoff
Carol L. Frank
Constance Flemming Frank
Peggy Ann Galle
Jill Naomi Giltenboth

Cynthia Ann Coldsborough
 Janet Elaine Coral
 Judith Ann Cordon
 Lynn Marie Cundry
 Linda Cade Haber
 Susan Catherine Hadam
 Kathryn Anne Hafford
 Diane Lucile Holditch Davis
 Carlyn Ann Horning
 Maureen Lucille Ireland
 Betty June Jeffcoat
 Jean Ann Kanik
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 Kristen Ann Keirseay
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 Christine Lynette Mundie
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 Carol Elizabeth Rogers
 Anne Marie Roussell
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 Rebecca Sue Schmidt
 Linda Cwyn Schoonover
 Jane Dilliard Scott
 Evelyn Louise Sellors
 Ann Louise Sheffield

Rebecca Anne Shelley
 Lael Wyckoff Shoemaker
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 Jocelyn Windsor Stebbins
 Alison Vance Street
 Alice May Succop
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 Phyllis Ann Swaerengen
 Dorothy Brower Thompson
 Paige Thompson
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 Jacqueline Marie Tucker
 Caroline Hungerford Varner
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Bachelor of Health Science

James Ralph Cummings
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 Joseph Jeffrey Heinrich

Ralph Looman
 Dale Cene McBride
 Louis Franklin McDaniel
 Leonard Milcowitz

Thomas Norbert Nalley
 Harry Alexander Newman, Jr.
 Michael Cray Phillips
 Jerry Wayne Smith

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Trinity College of Arts and Sciences

Summa cum laude

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 Susan Elizabeth Walker
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 Charles Porter Ellington, Jr.
 John Daniel Kennedy, Jr.
 James Lewis Stiepan
 Eugenia Caroline Delamotte
 Jan Tore Hall
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 Peter Van Trigt, III

Magna cum laude

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 Gard William Otis
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 Allison Delime Dickson

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 Timothy James Vrana
 Eric Robert Calton
 Stuart Loy Kutz
 Jeffrey Ray Means
 Elisabeth Maldwyn Stanger
 Deborah Fran Hotch

Honors in Departments and Schools

DEPARTMENTAL GRADUATION WITH DISTINCTION

Art

Christine Megan Armstrong Jeffrey Chipps Smith

Botany

David Andrews Dalton Jeffrey Westbrook Holcombe Sheryl Anne Pastryk

Chemistry

James Thomas Bowman Scott Ray Miller Michael Earl Wilson
 Peter Arnold McCue Arthur Thomas Poulos

Classical Studies

Nan Lou Coleman Bonnie Lynn Jones David Hunter Miller

Economics

Clifford David Goalstone Gail Peacock McConnell Ida Marie Thomas
 Dale Anne Hardesty James Robert Nicotera Joseph Mikesell Thomas
 Douglas Hal Joines Mark Eric Stalnecker

Education

Susan Virginia Whitlock

Civil Engineering

Michael Ray Peeler Mark Grierson Smith Eric Edward Weber
 Eric Alan Sedwick

Electrical Engineering

Mark Charles Davis

Mechanical EngineeringRobert Ryoichi Ando
Joseph Clark Bates, IIIFred Mehler Fehsenfeld
Charles Thomas LunsonScott Anderson McHugh
Frederick E. Munschauer, III**English**Christopher Lane Beebe
Jamie Howe BurnsEugenie Caroline DeLamotte
Richard Louis EplingAmarette Hill Gery
Frances Kay Greenberg**Geology**

Paul Jeffrey Brown

Germanic Languages and Literature

Harmon Michael Pyles

HistoryThomas Paul Colantuono
Dara Lynn DeHaven
Eric Robert Galton
Andrew Edward Grigsby, Jr.Harry Hokey Harkins, Jr.
Katharine Derrill Kennedy
Waldo Emerson Martin, Jr.
Sarah Ann RockRichard Cummer Sutton
Paul Herbert Turney
James Wimer Wrenn**Philosophy**

Milton Meyer Wachsberg

Physics

Mark Joseph Gotay

Political ScienceJoseph Cord Bosch
Jeffrey John Davidson
Cary David DechowitzJay Francis Jason
Larry Elliot Klayman
Stephen Robert KratzkeRobert Brian Rice
Timothy Wayne Terry
Timothy James Vrana**Psychology**Mark Douglas Andrews
Carolyn Ann Cook
Patricia Lynn Donaldson
Cleveland Kent Evans
Robert Dodds Glass
Terence Michael HinesStuart Loy Kutz, Jr.
Marvin Edward Boyd Lymberis
Scott Aiken Mason
Susan Holmes McDaniel
John Robert Moore
John NezlekJames Frederic Norcross
Dennis Raczkowski
Emily Merryman Sadler
Mark Randolph Stenerson
Michael George Williamson**Religion**

Ronald Stewart Gass

Barry David Hoberman

Edith Marechal Murphy

Romance Languages

Richard Gutierrez

Susan Elizabeth Walker

ZoologyHenry Manville Beck, Jr.
Daniel Hatheway DonovanCharles Porter Ellington, Jr.
Craig Michael FeenyMitchel Allen Kanter
Philip Charles Wood**SCHOOL OF ENGINEERING****Summa cum laude**

Bruce Henry Battjer

Magna cum laudeJohn Gary Dudley
Michael Ray Peeler
Joseph Clark Bates, IIIJames Albert Strycharz
Fred Mehler Fehsenfeld, Jr.
Raymond Valdis TiltinsCharles Lacy Ringgold, Jr.
Thomas Lee Richardson**Elections to Tau Beta Pi**Robert Ryoichi Ando
Joseph C. Bates
Bruce Henry Battjer
Ronald Charles Carlile
Mark Charles Davis
John Gary DudleyFred Mehler Fehsenfeld, Jr.
William Madsen Kück
Charles Thomas Lunson
Frederick Eugene Munschauer III
Michael Ray Peeler
William Tyler PerryThomas L. Richardson
Charles Lacy Ringgold, Jr.
Charlotte Jane Springer
James Albert Strycharz
Paul A. Vadnais**SCHOOL OF NURSING****Summa cum laude**

Katherine Pieper Webster

Mary Evans Putnam

Linda Cade Haber

Magna cum laude

Jean Anne Surat
Gale Nadine Touger
Carol Anne Kriske
Cail D'Onofrio
Jane Mullin McCormick
Ellen Marie Snyder
Janet Lemen Chesson
Susan Catherine Hadam
Alice May Succop

Katharyn Swain Antle
Wendy Ann Mosher
Sandra Anne Wiley
Carlyn Ann Horning
Kristen Ann Keirseya
Janet Theresa Matena
Ann Louise Sheffield
Beverly Anne Peirce
Judith Ann Gordon

Marilyn McKim
Kathleen O'Connor
Betty June Jeffcoat
Patti Lu Alfred
Sarah Christine Zahniser
Jocelyn Windsor Stebbins
Margaret Susan Meier

ELECTIONS TO PHI BETA KAPPA

Class of 1973

Bruce Henry Battjer
Stephen Ellis Bear
Charles Rufus Beaudrot, Jr.
Henry Manville Beck, Jr.
Christopher Lane Beebe
Marilyn Christine Biggs
Nanette Hahr Bishopric
Janice Carol Boon
James Keith Bradley
Robert Herman Brinkmeyer, Jr.
Judy Dianne Brinson
William Howard Callaway, Jr.
Roger Evan Carp
Holly Shaw Chambers
Pamela Moy Chin
Eugenia Caroline DeLamotte
Mark William Denny
John Cary Dudley
Charles Porter Ellington, Jr.
Richard Louis Epling
Cleveland Kent Evans
Fred Mehlert Fehsenfeld, Jr.
Laura Susan Forgeron

Teresa Karen Galloway
Bobby MacBryan Green
Mark Steven Gorovoy
Mark Joseph Cotay
Karen June Gullberg
Jan Tore Hall
Willard William Hall, II
Edward Marshall Hanson, Jr.
Priscilla Corwin Jack
Terry Gregory-Patrick Kane
Mitchel Allen Kanter
Patricia Louise Kellett
John Daniel Kennedy, Jr.
Raymond Douglas Kiser
Cathy Ellen Krug
Ben Harrison Logan, III
David Gaston Luther, Jr.
Waldo Emerson Martin, Jr.
Christopher Lee Mattil
Michele Nathan
James Robert Nicotera
Mark Steven Nielsen
Thomas Herbert O'Hare

Linda Diane Parsons
Carolyn Frances Pedley
John Curtis Platt
Glenn Richard Reichardt
Sally Anne Roffman
Paul Craber Saunders, II
David Ansten Schoenholz
Rudolph Conrad Schweizer
Scott Bradley Sherman
Sarah Haskew Simms
Jeffrey Clark Smith
Mark Eric Stalnecker
James Lewis Stiepan
Ida Marie Thomas
Joseph Mikesell Thomas
Diane Christine Touret
Lorry Van Laasteren
Peter Van Trigt, III
Milton Meyer Wachsberg
Robert Alexander Wason, IV
Frances Reade White-Spunner

SPECIAL PRIZES AND AWARDS

ACC Plaque for Excellence in Scholarship and Athletics—Steve Hunter Jones
American Chemical Society Award in Analytical Chemistry—Peter Allan McCue
American Society of Civil Engineers Prize—William Madsen Kück, Erick Alan Sedwick
American Public Works Association Prize—Ozey Knight Horton, Jr., Michael Ray Peeler
Alice M. Baldwin Scholarship Award—Anne Louise Duvoisin, Cathy Ann Morgan, Edith Marechal Murphy,
Jane Shotwell Satterwhite, Leigh Ellen Wenzinger
Evelyn Barnes Memorial Scholarship—Alice Jane Bassman, Susan Virginia Whitlock
Julia Dole Prize—First Prize—Carlie Jordan Coats, Jr., Carl Linwood Gardner—Second Prize—Jane Shotwell
Satterwhite, Martin Clarence Sutzenbecker
Delta Delta Delta Scholarship—Betty June Jeffcoat
Duke University Department of Chemistry Award—Scott Arnold Miller, Michael Earl Wilson
Anne Flexner Memorial Award for Creative Writing—First Prize—Samuel John Atlee—Second Prize—Catherine
Anne Perillo
Janet M. Glasgow Memorial Award—Joanne Antoinette Peebles Wilson
Edward C. Horn Memorial Prize in Zoology—Charles Porter Ellington, Jr.
Thomos Jefferson Award—Martin Lerner Schwartz
W.T. Laprade Prize—Katharine Derrill Kennedy
Robert E. Lee Award—Roger Oliver Beardmore
Milmow Prize—William Madsen Kück
C.V. Mosby Book Award—William Thomas Hardaker, Jr., David Hout Mason, Jr., James Edward Sarn, Joanne
Antoinette Peebles Wilson
Moseley Award—Betty June Jeffcoat
School of Nursing Alumnae Award—Janet Lemen Chesson
James Oliver Memorial Prize—Charles Rufus Beaudrot, Jr., Shelley June Hanson
Outstanding Service Award—Katharyn Swain Antle
Roche Award—Edward Garner Flickinger
Walter J. Seeley Scholastic Excellence Award—Bruce Henry Battjer
William Senhauser Prize—James William Johnson, Jr.
George Sherrerd III Memorial Award in Electrical Engineering—Bruce Henry Battjer
Zener Award—James Frederic Norcross

DEGREES AWARDED SINCE THE PREVIOUS ANNUAL COMMENCEMENT DIPLOMAS DATED SEPTEMBER 1, 1973

BACHELOR OF ARTS

James Dennis Armstrong
Deborah Grant Arnold
Janet Bixby Arrowsmith
Kristin Clifford Baer
Thomas Allen Banks, Jr.
Carol Woodson Bernard
Scott Baxter Bullock
Jamie Howe Burns
Dona Carol Chamberlain
Robert Brill Christian
John P. Cofrin
David Charles Coggin
Arthur Mayo Cole, Jr.
Kevin Patrick Counihan
John Wesley Covington
Pauline Holt Cozart
Linda Jean Curtis
Peter Shaw Curtis
Rachel Mary Davies
Truman Eugene Deyo, II
James W. Dickey
James Jaimet Dobson
Jay Reese Dove
Stephen Richard Dunn

Anne Johnson East
Anna Lynn Eblen
Susan Dorothy Evans
Ruth McKinney Gerbe
Karen June Gullberg
Jack Douglas Guthrie, Jr.
Roy Wilks Hammock
Robert C. Heller
Robert W. Hewgley
Marianne Jackson
Denise L. Juppé
Kathleen Morgan Kirkman
Susan Frances Lambert
Margaret McCauley Lloyd
Lynne Loeffler
Sharon Lee MacDonald
Paul Madden
Angelo H. Magafan
Ramez Maluf
Patrick Earle Martin
Bill McMahon
James Jefferson McMillan
Anne V. McQuilkin

Lucinda Merry
Lynne Susan Michelson
June Ellen Miller
Gary Bruce Mills
Sidney Earl Mills, Jr.
Robin Kathleen Moran
Leigh Gronich Mundhenk
John Grimsley Napier
Michele Nathan
Margaret A. O'Reilly
Thomas Henry Oxenham, III
W. Douglas Poe, Jr.
Gene Livingston Ray
Rebecca C. Reardon
Robert Louis Rolnick
Phyllis Nancy School
Alice Huneycutt Shaw
Jane Louise Sprol
Raymond C. Strickland
Carolyn Cather Tierney
Sally Llewellyn Verner
Robert Ross Wenzel
Michael Meggs Wolfe

BACHELOR OF SCIENCE

Andrea Meryl Archie
Brion Locke Blackwelder
Gregory Kimeron Collins
Dorothy Joan Munkenbeck
Fragaszy

Robert L. Friend
Thomas Vaclav Laska
Sally MacIntyre
Jay Edward Mattingly
Clarence Elbert Morgan, Jr.

Herbert Paul Orrick
Patricia Lynne Pascul
Annmarie Rehm

BACHELOR OF SCIENCE IN ENGINEERING

Douglas James Chamberlain
Thomas James Gillespie IV

Brian Henry Kennedy

Edward Delmar Soady, Jr.

BACHELOR OF SCIENCE IN NURSING

Barbara Ellen Harrod

CLASS HONORS

TRINITY COLLEGE OF ARTS AND SCIENCES

Freshman Class Honors 1972-1973

Aguilar, Manuel O.
Allen, Graig S.
Allman, Tenna L.
Amos, Paul D.
Andreson, Jeffrey P.
Andrews, William C., Jr.
Armaly, Raya
Atkins, Bowman K.
Baker, Laura E.
Batlle, Juan F.
Baumstein, Donald I.
Basemore, Webster, Jr.
Beacham, Robert E.
Beardall, Edith M.
Beachtel, Pamela B.
Beissinger, Mark R.
Benedict, Nathan B.
Bergen, Elizabeth B.
Boulay, Joseph A.
Bouvier, Kathryn S.
Bowers, Carole E.
Bradley, Harry C., Jr.
Bragg, Susan L.
Brandt, Carol P.
Brandon, John D.

Brandon, Rhett D.
Brehm, Barbara A.
Breslow, Marc I.
Broderick, Kathryn P.
Browder, Diane M.
Brown, Lisa E.
Brown, Paul G.
Brunstad, William D.
Burdett, Doris E.
Burr, Nancy J.
Calistro, Roger B.
Campbell, Elizabeth E.
Campbell, Terence D.
Cantrell, Keith W.
Cary, William G.
Caudill, James W.
Ceperley, Laura E.
Childs, Jack D.
Chirichella, Eric J.
Church, George M.
Clark, Martha A.
Clemens, Judith L.
Cohen, Howard J.
Coleman, Thomas S.
Conner, Laurie C.

Coletta, Corinne A.
Cooper, Charles R.
Copple, Cynthia M.
Costlow, Jane T.
Cox, William R.
Crisara, Stephanie N.
Croft, Thomas A.
Crow, Wayne H.
Cruise, Mary C.
Culpeper, Blair E.
Daniel, Thomas F.
Davidson, Robert E.
Davis, Brooke H.
Davis, Charles K.
Davis, Lant B.
Davis, Paul C.
Davis, William Raymond
Dawson, John T.
Dennard, David T.
Denning, Stephen M.
Devito, Dennis P.
Dew, Thomas H.
Dugoni, James E.
Dowd, Sally C.
Doyle, William J. III

Dozier, Mary G.
 Dozier, Robert E.
 Drechsler, Kristen E.
 Dunn, Kathleen A.
 Dunn, Mitchell B.
 Dykers, Patricia I.
 Eacho, William C. III
 Edwards, Deborah
 Elks, Martha L.
 Emery, Daryl C.
 Everhart, James E.
 Ewing, Gilmer C.
 Fairchild, Ann V.
 Falvello, Lawrence R.
 Farris, Fred S.
 Feltman, Douglas S.
 Ferguson, Lance S.
 Fetter, Sarah A.
 Fluck, Brian H.
 Frazier, James Matthew
 Froemming, Mark D.
 Callaher, David N.
 Gardner, Gay L.
 Geist, Gordon E.
 Gibson, John R.
 Giguere, Jeffrey K.
 Gillim, Gaylee W.
 Glaser, John P.
 Gleit, David H.
 Gofreed, Deborah L.
 Golieb, John A.
 Gore, Thomas B.
 Grigsby, Carol A.
 Hall, Barbara J.
 Hall, Sherry L.
 Harding, Suzannah
 Harman, Marsaleete
 Harper, Robert T.
 Harris, Stephen W.
 Hassman, Mark F.
 Hatler, Patricia R.
 Hartsoe, Eileen E.
 Hazen, Kenneth R.
 Hicks, Thomas A.
 Higgins, Mary M.
 Hinson, Winifred H.
 Hittman, Mark H.
 Hoff, Robert D.
 Hoffman, Wayne K.
 Hollar, Dale E.
 Holzswieg, Sarah F.
 Hom, Carol A.
 Houston, Ann A.
 Howell, David N.
 Hoxeng, Holly S.
 Huang, Min-Chein
 Huie, Wade P. III
 Hurt, George S.
 Isom, Ellen E.
 Jacobi, Maryann
 Jakus, Lawrence K.
 James, Clare A.
 Jenkins, Elizabeth A.
 Johnson, Catherine S.
 Jones, Henry W.
 Kahana, Madelyn D.
 Kapnick, David J.
 Karampelas, Dean T.
 Kardon, Jonathan D.
 Kartman, Marc G.
 Katzin, David N.
 Kennedy, Deobrah D.
 Kennedy, Harvey R.
 Keyserling, Thomas C.
 Kinney, David B.
 Klemfuss, Rosemary M.
 Kopenhefer, Richard W.
 Kuhn, Michael K.
 Lambert, Robert A.
 Landry, Donna E.
 Lane, Richard A.
 Levey, Lawrence A.
 Lewis, Thomas H.
 Li, Kenneth C.
 Lockhart, Thomas P.
 Long, Isabella P.
 Lozier, Jeffrey R.
 Lucas, Kathryn J.
 Luck, Stephen B.
 Lupo, David E.
 Maher, Jacquelyn J.
 Manis, Mark W.
 Manning, Scott C.
 Mappin, Francis G.
 Marfing, Thomas E.
 Marlow, Elizabeth L.
 Marquess, William H.
 Matloff, Jody L.
 Matz, William J.
 Mayo, Tracy L.
 McGovern, Bernadette M.
 McGuigan, Leigh A.
 McVane, Daniel A.
 Meric, Linda A.
 Mertz, Elizabeth A.
 Middlemas, Eric D.
 Moore, James E.
 Moore, Thomas D., Jr.
 Montgomery, Elizabeth A.
 Morgan, Benjamin W.
 Morgan, Gail N.
 Moscotti, Roger E.
 Motsinger, Mark B.
 Mow, Deborah S.
 Myers, Elizabeth R.
 Newton, Cathryn R.
 Nies, Nancy A.
 Obermann, David F.
 Olson, Christine A.
 O'Neill, Kenneth J.
 Overby, Barbara C.
 Overton, Margery F.
 Parker, Margaret E.
 Pate, Susan L.
 Patterson, Amy E.
 Pierce, Donald L.
 Polk, Capie A.
 Prasse, Jane E.
 Prey, William T.
 Price, Robert H., Jr.
 Putterman, Eric A.
 Ragland, Elizabeth
 Rand, Helen L.
 Reed, David A.
 Rehder, John G.
 Richard, Mark A.
 Robertson, Daryl B.
 Robinson, Mark E.
 Rodine, Mary K.
 Roetger, Virginia D.
 Rogozinski, Abraham
 Rumer, Richard R.
 Ruprecht, Robert R.
 Rusin, Michele J.
 Ryan, Jane M.
 Sager, William W.
 Sakornbut, Ellen L.
 Sando, Thomas W.
 Saul, Walter B.
 Scarborough, Clay E.
 Schacter, Kenneth I.
 Schaeffer, David A.
 Schoettmer, Stephen C.
 Schwartz, Julie E.
 Schwarzenberg, Sarah J.
 Segerlind, Fern A.
 Shea, Shawn C.
 Shehee, Susan E.
 Shell, Suzanne L.
 Shields, John H.
 Sides, Pamela D.
 Sidebottom David G.
 Silsby, Liana C.
 Sims, Mary A.
 Simpson, Cynthia M.
 Snitzer, John L.
 Soule, Margo C.
 Spencer, Luther E.
 Stanley, Wilma E.
 Stansell, John W., Jr.
 Steenbarger, Brett N.
 Steinhilber, Steven R.
 Strimer, Peter M.
 Sturm, Lynne
 Swabb, Eileen L.
 Swenson, Paul M.
 Thompson, Catherine E.
 Thompson, Katherine A.
 Tietjen, David P.
 Towers, Susan S.
 Trover, Marguerite H.
 Turner, James L.
 Van Dalen, Robert W.
 Van Heest, Debra W.
 Vinegar, Richard J.
 Wagstaff, Joseph E.
 Walker, Elizabeth R.
 Walker, Nan D.
 Walters, Linda L.
 Wang, Scott E.
 Ward, Bennett C.
 Waterman, Diedrich C.
 Waters, Leslie E.
 Wegwart, Gordon T.
 Weir, Patricia A.
 Welch, Sally R.
 Werley, Elizabeth L.
 Wermert, Barbara J.
 Whatley, Nancy E.
 White, Alexandra D.
 Wilbanks, Jobn W.
 Wilkinson, Sarah E.
 Williams, Andrew C.
 Williams, Jacqueline A.
 Williams, Marna B.
 Wilson, Kerry M.
 Wilson, Christopher H.
 Winkler, Nancy E.
 Wise, William, Jr.
 Withers, Marian L.
 Wochos, Frank S.
 Wolff, Michael P.
 Wooldridge, Janette
 Yarbrough, Emily E.
 Yensen, Kathryn D.
 Zebrower, Michael E.
 Zechiel, Janet C.
 Zell, Brian K.
 Westmoreland, Timothy M.

Sophomore Class Honors 1972-1973

Abriss, Richard B.
 Adams, Marsha G.
 Ames, Elizabeth W.
 Applegate, Ann G.
 Arasi, Robert
 Arneke, David R.
 Atwood, Donna M.
 Baker, Merl W.
 Ballard, Mark B.
 Banks, Bonnie G.
 Barnet, John A. III
 Barnett, Carl E., Jr.
 Barrows, Albert A. III
 Baum, Rudy M.
 Baxter, William W.
 Beardsley, Thomas L.
 Becht, James H.
 Benda, William, Jr.
 Bender, Arlene L.
 Bender, Robert L. II
 Blalock, Steven F.
 Blanco, Mayling C.
 Blass, Jeffrey D.
 Block, Richard O.
 Boggs, Randall B.
 Bohl, Marilyn Anne
 Bonds, Mark E.
 Bounous, Edwin P., Jr.
 Bowman, Zebulon L.
 Boyd, Darrell F.
 Bradley, Stephen K.
 Brandenburg, Ellen L.
 Breedon, Laura J.
 Brody, Gordon A.
 Bromley, Michael D.
 Broom, Sarah J.
 Brown, Beverly A.
 Brown, Frank R., Jr.
 Brown, Paula J.
 Brubach, Holly B.
 Buckley, Beverly P.
 Buster, J. K.
 Butera, Philip J.
 Byrd, Deborah L.
 Cardinal, Eric
 Carlson, Grady K.
 Carney, Michael J.
 Cauce, Cesar Vicente
 Cecelski, Elizabeth W.
 Cederberg, James A.
 Cheatham, David H.
 Clark, Reginald J.
 Cobb, James L.
 Cogswell, Neale A.
 Cohen, Jeffrey L.
 Conley, Carolyn A.
 Coogan, Peter F., III
 Cooper, Kent B.
 Crist, Jeffrey R.
 Cummins, Constance L.
 Dameron, George W.
 Davidson, Steven G.
 Davis, Linda G.
 De Armendi, Juan R.
 Dean, Stuart L.
 Demming, Susan G.
 Dennison, Lee S.
 Denny, Timothy P.
 Dietch, James T.
 Dobson, Mary E.
 Dove, Edward S. III
 Downs, John S.
 Dresser, Michael E.
 Drummond, William J.
 Duffie, Erin L.
 Duggins, Ray B., Jr.
 Duncan, Susan Gayle
 Duus, Andreas, III
 Eaton, Patricia T.
 Ecklund, Paula N.
 Eggleston, Warren N., Jr.
 Egizi, Vincent J., Jr.
 Elliott, Michael H.
 Elmendorf, Holly A.
 English, David M.
 Everitt, Daniel E.
 Faulkner, Sarah A.
 Felder, Clifford F.
 Ferree, Nancy A.
 Filipiski, Jerrold M.
 Fix, Alan D.
 Fleischer, Robert P.
 Floyd, Richard D. IV
 Ford, Charles Stephen
 Fordham, Benjamin C.
 Fosberg, Stephen L.
 Foushee, Harvey C., Jr.
 Foust, Lawrence L.
 Franklin, Richard N.
 Freeark, Kristine E.
 Fuller, Cheryl L.
 Fulton, Janis L.
 Furlong, Janice N.
 Fylypowycz, Andrew
 Gamble, Robert T.
 Garland, Steven
 Garraux, James D.
 Gerhard, James N.
 Gholston, Teresa L.
 Goldberg, Joel S.
 Goldenberg, Heidi E.
 Gorman, Michael R.
 Graef, Linda C.
 Graham, Christine L.
 Graybill, Peter A.
 Gropp, Douglas M.
 Gross, Robert S.
 Grover, Linda J.
 Guyon, Jeffrey J.
 Hale, John H.
 Hanna, Stephan D.
 Harary, Stuart K.
 Harris, Stuart I.
 Hartwig, Cynthia C.
 Hassett, Margaret A.
 Hauspurg, Peter R.
 Hedrick, Elizabeth A.
 Helvie, Mark A.
 Hemsworth, Holly L.
 Henard, Clarence D., Jr.
 Hendrick, Thomas E.
 Herlevich, Camilla M.
 Herzog, Paul F.
 Hetherington, David M.
 Holliman, Cecil J.
 Hoover, Barbara H.
 Horton, Deborah E.
 Hull, John D., IV
 Hunter, Jeffrey L.
 Hurlock, Donna G.
 Ichel, David W.
 Jackson, John C.
 Jarik, Charles L.
 Jayson, Stephen
 Jefferis, William H.
 Johnson, Candace M.
 Joseph, Barbara C.
 Joslyn, John Nicholas
 Kafka, Barbara D.
 Kaufmann, Lisa
 Keith, Julian F. III
 Keyser, Willard M. II
 Kiel, Douglas P.
 Kilgore, Michael A.
 King, Charles M.
 King, Kristen L.
 Kingsolver, Joel G.
 Kirk, Steven C.
 Klapheke, Martin M.
 Klein, Andrew S.
 Knight, Stephen D.
 Knobloch, Ellen L.
 Korenchuk, Keith M.
 Korstvedt, Laura R.
 Krahling, Allison J.
 Kreutzer, John A.
 Kupperman, Stephen H.
 Lansing, Ann M.
 Lazar, Cathy Joines
 Leatherman, William S.
 Lee, Barry W.
 Lee, James E.
 Legrand, Charlene D.
 Lester, Elizabeth P.
 Levin, Linda K.
 Levin, Stephen A.
 Lindsey, Peggy
 Lineberry, Joseph L., Jr.
 Littman, Andrew B.
 Locastro, Barbara L.
 Lyman, Judith M.
 MacManus, Harold C., Jr.
 Malin, Seth W.
 Markus, Linda C.
 Marshall, Cynthia Ann
 Marshall, Wendy L.
 Marshburn, Daniel G.
 Martin, Cary M.
 Mason, Martha R.
 Massey, Stephen
 Maynard, Kathleen P.
 Mayron, Raymond
 McCable, Marshall E. III
 McCarty, William L.
 McCown, Barbara J.
 McCoy, Steven R.
 McDonald, William M.
 McGehee, Lockie J.
 McIntosh, James O.
 McKinney, Jacqueline
 McLean, Ellen D.
 McMichael, Lawrence G.
 McVane, Carol L.
 Meglasson, Brenda F.
 Meny, Doranne E.
 Mercer, Deborah B.
 Meyers, Mary E.
 Miller, Leslie R.
 Milliken, Anne E.
 Mohr, Ellen Jane
 Morgan, Laura W.
 Motta, Philip J.
 Mueller, Curt Harrison
 Muessel, Rita A.
 Mullen, Walter
 Ness, David L.

Noechel, Nancy
Noland, Thomas T., Jr.
O'Barr, Thomas B., Jr.
O'Callaghan, Pamela G.
Orzano, Paula A.
Parker, Thomas J.
Paterson, Robert W.
Patow, Carl
Patterson, Susan L.
Peterson, Mark F.
Picozzi, Frank T.
Pless, Laurance D.
Pogash, Kenneth E.
Porter, Mary L.
Power, Sara G.
Powers, Nancy A.
Prince, Marilyn A.
Purkrabek, Joan
Pusey, Michele C.
Quarles, Leigh D., Jr.
Rader, Kermit L.
Ramirez, Melissa J.
Ranseen, Tom A.
Ransom, Richard Arthur
Reeder, Julie E.
Regan, Gerald A.
Reiland, Michael G.
Reintgen, Douglas S.
Richards, Miriam J.
Ricks, Charles R.
Ricks, Phyllis J.
Robertson, Gregory A.
Robinson, Edward N., Jr.
Rodriguez, Robert A.
Roelofs, Richard P.
Rogers, Priscilla A.
Ruhin, David B.
Ruhlen, Richard L.
Rushing, Ann E.
Ryan, Kathleen M.
Schaaf, Stephen W.
Schaffhausen, Gail A.
Schreiber, Ann L.
Schroll, James R.
Schultz, Howard H.

Schwartz, Amy L.
Scott, Richard W.
Seeger, Claudine L.
Sessions, Teresa R.
Sewell, Allen C.
Shack, William P.
Shavel, Michelle M.
Shoven, James E.
Shrago, Alvin H.
Silver, Jonathan M.
Simmons, Gwendolyn R.
Simpson, James B.
Smirniotopoulos, Thomas T.
Smith, Bryan L.
Smith, David Farrell
Smith, Gregory N.
Smith, Michael D.
Smith, Susette K.
Snider, John A.
Southard, Samuel C., Jr.
Springer, David E.
St. Pierre, Rick K.
Stanton, Edward S.
Stautherg, Cynthia S.
Steeper, Theresa A.
Sterrett, Tyler O.
Stevenson, John A.
Stiles, Louisa D.
Stocker, John Joseph
Stott, Sue J.
Strott, John B.
Stuntz, Richard B.
Sublette, Timothy M.
Sutton, A. K.
Swafford, Christine
Swank, Stephen D.
Swift, Marie C.
Symington, Jean B.
Tait, Amelia G.
Talmadge, Jeffrey D.
Tatum, Robert K.
Thalman, Ellen A.
Thompson, Eleanor F.
Tigler, Joel Bennett
Tofflemire, Lynda L.

Trawick, Janice
Truesdale, Robert S.
Truscott, Thomas R.
Trusty, Margot A.
Turner, Charles R.
Turner, Robert S.
Tychonievich, Louis P.
Vanderwist, Lynn A.
Vincent, William M.
Vinik, Bruce N.
Vollmer, Lydia H.
Wagoner, George R., Jr.
Walchli, Suzanne B.
Waldorf, Leah D.
Walker, Betsy E.
Walker, Garry R.
Walker, Lee N.
Walsh, Gerald Robert
Watkins, Robert S.
Weaver, Harold A., Jr.
Weinbeimer, Andrew J.
Weinstein, Bruce R.
Weisman, Julie A.
Welder, Lina R.
Westgate, Steven J.
Weston, Jonathan P.
Whatley, Ralph E. III
Whitman, Daniel Emanuel
Whitten, Louise M.
Wickwire, Cynthia S.
Widerman, Bradley D.
Willert, Alan K.
Willman, Philip L.
Wilson, Celeste R.
Wilson, Mark T.
Woefel, George F.
Wojnowich, Leonard S.
Yarhenet, Carole A.
Yoder, Stephen A.
Young, James W.
Zirkle, Peter K.
Zurys, Douglas G.
Zuspan, Kathryn J.

Junior Class Honors 1972-1973

Abhatt, David H.
Albert, Bruce M.
Albertson, Jane C.
Alexander, Anne D.
Allran, Austin M.
Alton, John M.
Apple, Jerry S.
Appy, Karen R.
Avent, James M.
Baker, Susan R.
Barah, Ronald E.
Bartow, Roberta K.
Barrett, Robert C.
Bastress, Susan B.
Beard, Robert W.
Beatty, Lee A.
Beck, James S. III
Beck, Janet R.
Beckenbach, Leslie
Becker, Marjorie R.
Benedict, Mark A.
Biewener, Andrew A.
Black, Kenneth A.
Blakely, Bruce F.
Blevins, Bruce E.
Blume, Julie E.

Boone, Joseph A.
Bost, William C.
Brahana, Elizabeth A.
Brauer, Joyce A.
Breen, Michael J.
Brewer, Stephen W.
Brooks, Deborah J.
Brown, Melville S.
Bunn, William B. III
Burgess, Stephen F.
Buzun, Barbara A.
Carey, Asher B. III
Carmichael, Kim A.
Carson, Michael L.
Cato, Karen L.
Chain, Herbert M.
Chamhliss, Arlene B.
Ciacci, Deborah A.
Clower, John W.
Cochran, Edith A.
Colahan, Joseph R.
Colm, Janet A.
Colvin, Jesse M.
Cook, Caroline L.
Cooper, Richard S.
Crago, David C.

Crane, Patrick T.
Cutrara, James A.
Darragh, Sharon J.
Dearhorn, Charles H. III
DeCarlo, Phyllis A.
Detweiler, Donald G.
Devecchio, Warren J.
Dewar, John E. II
Dihello, Lucille A.
Dieringer, Eugene H.
Dietert, Rodney Reynolds
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DUKE
UNIVERSITY
BULLETINS



BULLETIN
of Duke University

1974



1975

DIRECTORY OF OFFICERS,
FACULTY, AND STAFF

Bulletin of Duke University

**Directory of
Officers, Faculty,
and Staff**

1974-75

Durham, North Carolina 1974

Volume 46

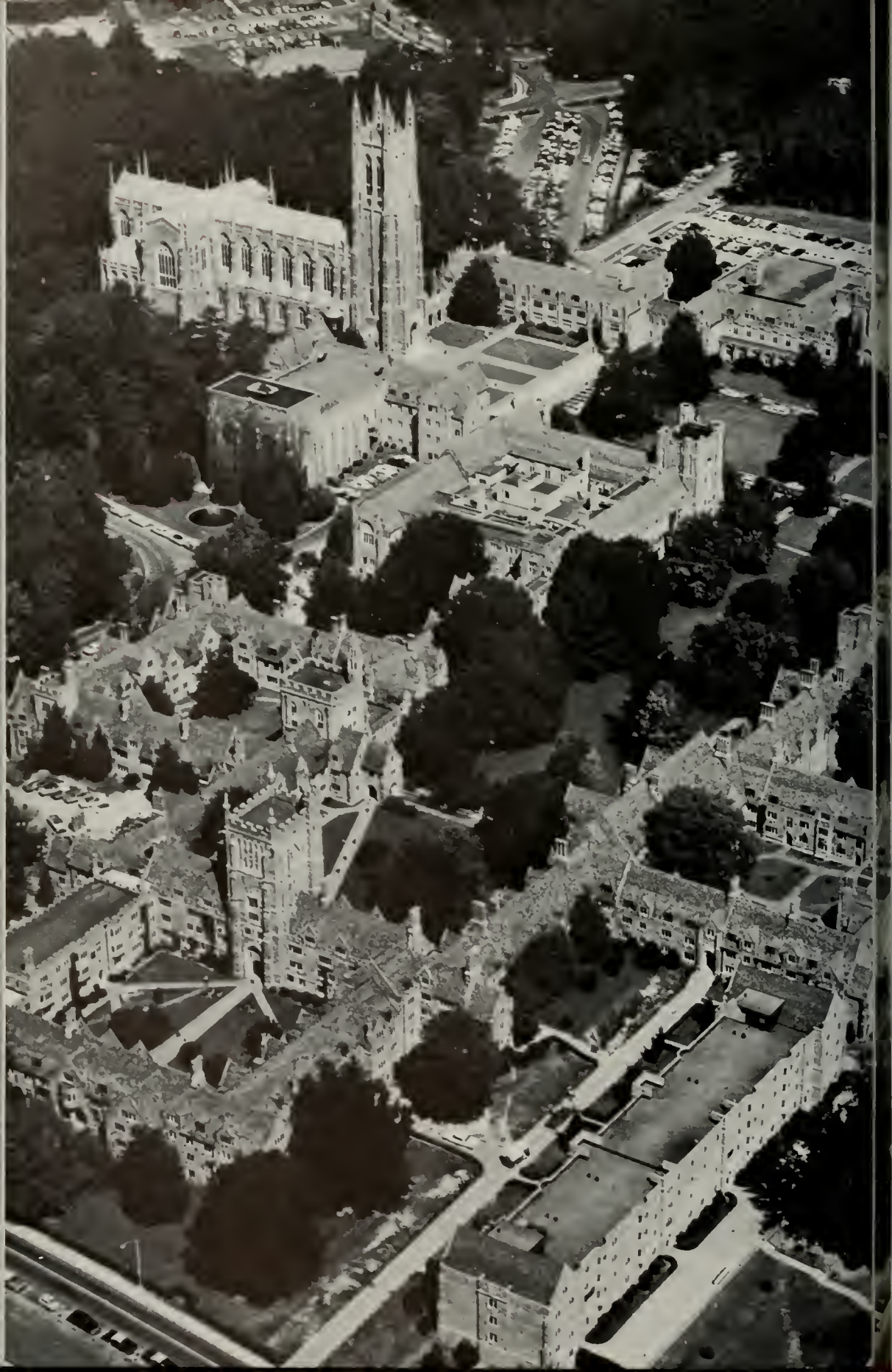
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Officers, Faculty, and Staff 1973-74

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^{1b}Deceased February 4, 1974.

²Deceased July 20, 1973.

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³Deceased October 7, 1973.

⁴Deceased September 30, 1973.

⁵Deceased December 21, 1973.

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Nels Anderson, Jr. (1966), Ph.D. (Purdue) Associate Professor of Physiology and Assistant Professor of Obstetrics and Gynecology	

⁵⁴Deceased March 10, 1974.

⁶Sabbatical leave, fall, 1973-74.

⁷Through 7-31-73.

⁸Through 8-31-73.

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⁹Through 12-7-72.

¹⁰Through 2-28-73.

¹¹Through 9-30-73.

¹²Sabbatical leave 1973-74.

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- Joseph Battle (1970), Ph.D. (Michigan)
Associate Professor of Business Administration 1636 Marion Avenue
- ¹⁷Russell Victor Baudinette (1972), Ph.D. (California at Irvine)
Temporary Instructor in Zoology 2727-A Sparger Road
- George J. Baylin (1939), M.D. (Duke)
Professor of Radiology and Associate in Anatomy 2535 Wrightwood Avenue
- ¹⁸William Waldo Beach (1946), B.D., Ph.D. (Yale)
Professor of Christian Ethics 130 Pinecrest Road
Route 3
- ¹⁹Dorothy Waters Beard (1938), R.N. (Vanderbilt)
Associate in Surgery Hillsborough, N. C.
- ²⁰Richard C. Bechtel, Jr. (1971), M.D. (Duke)
Associate in Obstetrics and Gynecology 801 Hudson Avenue

¹³Sabbatical leave 1973-74.

¹⁴Sabbatical leave 1973-74.

¹⁵Through 7-31-73.

¹⁶Through 7-31-73.

¹⁷Through 5-31-73.

¹⁸Sabbatical leave 1973-74.

¹⁹Through 4-18-73.

²⁰Leave of absence 7-1-72 through 6-30-74

- William L. Beery (1973), M.P.H. (North Carolina at Chapel Hill)
Associate in Community Health Sciences 4711 Hope Valley Road
- Victor S. Behar (1968), M.D. (Duke)
Associate Professor of Medicine 1821 Woodburn Road
- Robert D. Behn (1973), Ph.D. (Harvard)
Associate Professor of Policy Sciences and Lecturer in
Public Systems Engineering, Department of Civil Engineering Apartment 5-I
200 Seven Oaks Road
- Joseph C. Bell (1972), LL.B. (Yale)
Assistant Professor of Law 2410 Wrightwood Avenue
- Robert M. Bell (1972), Ph.D. (California at Berkeley)
Assistant Professor of Biochemistry 4300 Rhew Drive
- Theodore M. Benditt (1970), Ph.D. (Pittsburgh)
Assistant Professor of Philosophy 1006 Trinity Avenue
- Peter Brian Bennett (1972), Ph.D. (Southampton)
Professor of Anesthesiology and Biomedical Engineering 3010 Harriman Avenue
- Lawrence Paul Benson (1973), M.B.A. (Chicago)
Instructor in Health Administration 3084-D Colony Road
- ²¹Robert E. Benway (1967), M.D. (Miami)
Assistant Professor of Anesthesiology 2514 Tryon Road
- Jan Agar Bergeron (1969), V.M.D. (Pennsylvania)
Assistant Professor of Anatomy and Assistant Professor
of Zoology 2816 Cornwallis Road
P. O. Box 3805
Duke Hospital
- Byron J. Bergert (1973), Ph.D. (Florida)
Associate in Otolaryngology in the Department of Surgery
- John K. Bergland (1973), M.Div. (United Theological Seminary)
Associate Professor of Homiletics, Divinity School 3920 Berry Bush Place
- Charles W. Bergquist (1972), Ph.D. (Stanford)
Assistant Professor of History 39 Davie Circle
Chapel Hill, N. C.
- Frederick Bernheim (1930), Ph.D. (Cambridge)
James B. Duke Professor of Pharmacology 115 Woodridge Drive
- ²²Marvin H. Bernstein (1971), Ph.D. (California at Los Angeles)
Temporary Assistant Professor of Zoology 1103 Anderson Street
- Helga Wilde Bessent (1964), M.A. (Vanderbilt)
Assistant Professor of German 2117 Englewood Avenue
- Helen Smith Bevington (1943), M.A. (Columbia)
Professor of English 4428 Guess Road
- Lawrence C. Biedenbarn, Jr. (1961), Ph.D. (Massachusetts Inst. of Tech.)
Professor of Physics 2716 Sevier Street
- Darrell D. Bigner (1972), Ph.D. (Duke)
Assistant Professor of Pathology, Assistant
Professor of Virology in the Department of
Microbiology and Immunology, and Assistant Professor
of Experimental Surgery 4308 Samoa Court
- William Dwight Billings (1952), Ph.D. (Duke)
James B. Duke Professor of Botany 1628 Marion Avenue
- Edward G. Bilpuch (1962), Ph.D. (North Carolina)
Professor of Physics 106 Cherokee Circle
Chapel Hill, N. C.
- Warren P. Bird (1968), M.S.L.S. (Columbia)
Associate Professor of Medical Literature Apartment 10
2007 House Avenue
- John A. Bittikofer (1970), Ph.D. (Purdue)
Associate in Clinical Biochemistry 424 Valley Drive
- David E. Black (1968), Ph.D. (Massachusetts Inst. of Tech.)
Assistant Professor of Economics Apartment G-4
1829 Front Street
- ²³Martin Lee Black, Jr. (1930), M.B.A. (Northwestern), C.P.A.
Professor of Accounting in the Department of
Management Sciences Route 7, Box 220
- ²⁴William L. Black (1972), M.D. (North Carolina at Chapel Hill)
Assistant Professor of Medicine 611 Braokview Road
Chapel Hill, N. C.
- Elizabeth C. Blackburn (1972), M.Ed. (Virginia Commonwealth)
Associate in Radiology 1001 Stonehedge Avenue

²¹Through 12-1-72.

²²Through 5-31-73.

²³Sabbatical leave, spring, 1973-74.

²⁴Through 3-31-73.

- John O. Blackburn (1962), Ph.D. (Florida), C.P.A.
Professor of Economics 208 Pineview Road
- Lillian R. Blackmon (1973), M.D. (Arkansas)
Assistant Professor of Pediatrics and Assistant Professor of Obstetrics and Gynecology Apartment 18-B
 2836 Chapel Hill Road
- Charles Albert Blake (1972), Ph.D. (California at Los Angeles)
Assistant Professor of Anatomy 3101 Camelot Court
- Robert Lincoln Blake (1949)
Associate in Medical Art in the Division of Audiovisual Education 609 Ruby Street
- Kalman P. Bland (1973), Ph.D. (Brandeis)
Assistant Professor of Religion 2711 Augusta Drive
- William F. Blankley (1972), Ph.D. (California at San Diego)
Assistant Professor of Botany 119 Turner Street
 Beaufort, N. C.
- G. Douglas Blenkarn (1971), M.D. (Toronto)
Associate Professor of Anesthesiology and Assistant Professor of Physiology and Pharmacology 1516 Woodburn Road
- Jacob Joseph Blum (1962), Ph.D. (Chicago)
Professor of Physiology 2525 Perkins Road
- Dani P. Bolognesi (1971), Ph.D. (Duke)
Associate Professor of Experimental Surgery and Assistant Professor of Virology Apartment 11-B
 600-3 LaSalle Street
- Robert A. Bonar (1959), Ph.D. (California at Berkeley)
Associate Professor of Biophysics in the Department of Surgery Route 2, Box 407-A
 Chapel Hill, N. C.
- Joseph Bonaventura (1972), Ph.D. (Texas)
Associate in Biochemistry 210 Orange
 Beaufort, N. C.
- Allan Hadley Bone (1944), M.M. (Eastman)
Professor of Music 2725 Sevier Street
- Robert C. Bonhag (1973), M.H.A. (Duke)
Associate in Community Health Sciences 600 Starmount Drive
- James Bonk (1959), Ph.D. (Ohio State)
Associate Professor of Chemistry 112 Pinecrest Road
- Jack W. Bonner III (1971), M.D. (Texas)
Assistant Professor of Psychiatry 27 Windsor Road
 Asheville, N. C.
- Cazlyn Green Bookhout (1935), Ph.D. (Duke)
Professor of Zoology 1307 Alabama Avenue
- Elizabeth Circle Bookhout (1932-43; 1945), Ph.D. (New York)
Professor of Physical Education 1307 Alabama Avenue
- Frank L. Borchardt (1971), Ph.D. (Johns Hopkins)
Associate Professor of Germanic Languages 100 East Forest Hills Boulevard
- Lynn Gordon Borchert (1973), M.D. (Michigan)
Assistant Professor of Obstetrics and Gynecology Apartment 3-H
 1505 Duke University Road
- ²⁵Lloyd J. Borstelmann (1953), Ph.D. (California at Berkeley)
Professor of Psychology and Professor of Medical Psychology in the Department of Psychiatry 2506 Francis Street
- Edward Hecht Bossen (1972), M.D. (Duke)
Assistant Professor of Pathology 7 Thackeray
- Shirley Elaine Potts Bourbous (1970), M.S.N. (North Carolina at Chapel Hill)
Assistant Professor of Nursing 1106 Hill Street
- ²⁶Ruth M. Bowers (1967), M.A. (Chicago)
Associate Professor of Nursing 5114 Shady Bluff Street
- Elizabeth B. Bowling (1972), M.S.N. (Duke)
Instructor in Nursing 2409 Vesson Avenue
- J. E. Boynton (1968), Ph.D. (California at Davis)
Associate Professor of Botany 1808 Woodburn Road
- Joyce Bracewell (1973), M.S.W. (Florida State)
Associate in Psychiatric Social Work 74 Manetta Road
 Asheville, N. C.
- William Dalton Bradford (1966), M.D. (Western Reserve)
Associate Professor of Pathology and Assistant Professor of Pediatrics 3724 Hope Valley Road

²⁵Sabbatical leave, fall, 1973-74

²⁶Through 5-1-73.

- David Gilbert Bradley (1949), Ph.D. (Yale)
Professor of Religion 2507 Sevier Street
- Charles Kilgo Bradsher (1939), Ph.D. (Harvard)
James B. Duke Professor of Chemistry 118 Pinecrest Road
- Ralph Braibanti (1953), Ph.D. (Syracuse)
James B. Duke Professor of Political Science 3805 Darby Road
- Robert Griffin Brame (1970), M.D. (North Carolina)
Associate Professor of Obstetrics and Gynecology 2806 DeKalb Street
- Eleanor F. Branch (1972), Ph.D. (Duke)
Associate Professor of Physical Therapy 207 Oak Hill Drive
- ²⁷Joan B. Breedlove (1970), M.S.N. (Duke)
Assistant Professor of Nursing Route 7, Box 169
- ²⁸Jack W. Brehm (1958), Ph.D. (Minnesota)
Professor of Psychology Building 9, Room 225
Psychology Department
- Mary Lee Brehm (1969), Ph.D. (North Carolina)
Assistant Professor of Medical Sociology in the
Department of Psychiatry and Assistant Professor
of Sociology 1212 Roosevelt Drive
Chapel Hill, N. C.
- Marianne Breslin (1968), M.D. (Medical Academy, Dusseldorf, Germany)
Associate Professor of Psychiatry 1604 Michaux Rd., Chapel Hill, N. C.
- Bernard Bressler (1954), M.D. (Washington)
Professor of Psychiatry 2700 Circle Drive
- David L. Brewer (1969), M.D. (Oklahoma)
Assistant Professor of Medicine 2811 Stuart Drive
- Gert Henry Brieger (1970), M.D. (California at Los Angeles); Ph.D. (Johns Hopkins)
Associate Professor of Community Health Sciences and
Associate Professor of the History of Medicine 2742 Circle Drive
- William H. Briner (1970), B.S. (Temple)
Assistant Professor of Radiology 3100 Ithaca Street
- Mary S. Britt (1969), M.S. (Bowman Gray)
Associate in Pathology 2 Maxwell Road
Chapel Hill, N. C.
- Irwin A. Brody (1964), M.D. (Pennsylvania)
Associate Professor of Neurology in the
Department of Medicine Route 1
Hillsborough, N. C.
- Martin Bronfenbrenner (1971), Ph.D. (Chicago)
William R. Kenon, Jr. Professor of Economics 2915 Friendship Road
- Charlotte Vestal Brown (1971), A.B. (North Carolina at Greensboro)
Visiting Lecturer in Art 1206 Williamson Drive, Raleigh, N. C.
- ²⁹Earl I. Brown, II (1960), Ph.D. (Texas)
J. A. Jones Professor of Civil Engineering 1631 Marion Avenue
- ³⁰Frances Campbell Brown (1931), Ph.D. (Johns Hopkins)
Professor of Chemistry 1205 Dwire Place
- George William Brumley, Jr. (1967), M.D. (Duke)
Associate Professor of Pediatrics and Associate
Professor of Obstetrics and Gynecology 3415 Surry Road
- Dorothy J. Brundage (1968), M.N. (Emory)
Assistant Professor of Nursing Route 6, Box 215
Mebane, N. C.
- Frederick P. Bruno (1972), M.S. (Florida)
Associate in Radiology, Nuclear Medicine Division 3933 Linden Terrace
- Anne-Marie Bryan (1961), M.A.T. (Duke)
Assistant Professor of Romance Languages 1017 Norwood Avenue
- Paul Robey Bryan, Jr. (1951), Ph.D. (Michigan)
Associate Professor of Music 1108 Watts Street
- Andrew L. Bryant (1972), B.S. (Millersville State Coll.)
Temporary Instructor in Botany 3012 Dixon Road
- C. Edward Buckley (1963), M.D. (Duke)
Associate Professor of Medicine and Assistant Professor of
Microbiology and Immunology 3621 Westover Road
- Rebecca Hatcher Buckley (1968), M.D. (North Carolina)
Associate Professor of Pediatrics and
Associate Professor of Immunology 3621 Westover Road

²⁷Leave of absence 1-1-74 through 12-31-74.

²⁸Sabbatical leave 1973-74.

²⁹Sabbatical leave, spring, 1973-74.

³⁰Retired 8-31-73.

- Louis J. Budd (1952), Ph.D. (Wisconsin)
Professor of English 2753 McDowell Street
- Albert George Buehler (1955), M.A. (North Carolina)
Associate Professor of Physical Education 1718 Woodburn Road
- ³¹John Buettner-Janusch (1965), Ph.D. (Michigan)
Professor of Anatomy and Professor of Zoology 1528 Hermitage Court
- ³²Elizabeth Bullock (1968), M.M. (North Carolina)
Assistant Professor of Music 3829 Arklow Road
 Richmond, Virginia
- ³³Grace Bullock (1957-59; 1967), M.S.N. (North Carolina)
Assistant Professor of Nursing 3729 Hermine Street
- J. Gordon Burch (1971), M.D. (Univ. of Alberta, Canada)
Assistant Professor of Medicine 3508 Monford Drive
- Donald S. Burdick (1962), Ph.D. (Princeton)
Associate Professor of Mathematics 108 Emerald Circle
- Walter W. Burford (1970), S.T.M. (Yale)
Assistant Professor of Religion 120 West Lynch Street
- Peter C. Burger (1973), M.D. (Northwestern)
Assistant Professor of Pathology Apartment 13-E
 311 South LaSalle Street
- Peter Burian (1968), Ph.D. (Princeton)
Assistant Professor of Classical Studies 1610 Delaware Avenue
- Richard O. Burns (1964), Ph.D. (Illinois)
Professor of Microbiology 4117 Pavilion Place
- Richard M. Burton (1970), D.B.A. (Illinois)
Associate Professor of Business Administration 1639 Marion Avenue
- Ewald W. Busse (1953), M.D. (Washington)
J. P. Gibbons Professor of Psychiatry 1132 Woodburn Road
- ³⁴Ronald R. Butters (1967), Ph.D. (Iowa)
Assistant Professor of English Apartment 4
 808 Onslow Street
- Gale H. Buzzard (1957), Ph.D. (North Carolina State)
Assistant Professor of Mechanical Engineering 2716 Tryon Road
- Edwin H. Cady (1973), Ph.D. (Wisconsin)
Professor of English Box 168, Route 4
 Hillsborough, N. C.
- ³⁵James Archie Cadzow (1972), Ph.D. (Cornell)
Visiting Professor of Biomedical Engineering 107-B Bolinwood Apartments
 Chapel Hill, N. C.
- ³⁶John B. Cahoon, Jr. (1958), R.T. (Duke)
Assistant Professor of Radiologic Technology 2418 Perkins Road
- Clark Cahow (1968), Ph.D. (Duke)
Associate Professor in the Faculty of Arts and Sciences 1106 Watts Street
- Phillip B. Calkins (1973), Ph.D. (Chicago)
Assistant Professor of History 415 Monticello Avenue
- Shirley E. Callahan (1972), M.P.H. (North Carolina)
Associate in Community Health Sciences 14 Braddock Circle
- Jasper Lamar Callaway (1937), M.D. (Duke)
James B. Duke Professor of Dermatology 26 Stoneridge Circle
- ³⁷Ramon V. Canent (1965), M.D. (Santo Tomas, Manila)
Associate Professor of Pediatrics 1334 Welcome Drive
- ³⁸Peter Carbone (1966), Ed.D. (Harvard)
Associate Professor of Education 111 Brenrose Court
- Leonard Carlitz (1932), Ph.D. (Pennsylvania)
James B. Duke Professor of Mathematics 2303 Cranford Road
- ³⁹Edward Carmeliet (1972), Ph.D. (Univ. of Leuven, Belgium)
Visiting Professor of Physiology Duke University
 3709 Hospital
- ⁴⁰David W. Carpenter (1929), Ph.D. (Duke)
Professor of Physics 137 Pinecrest Road

³¹Through 8-31-73.

³²Through 2-28-73.

³³Sabbatical leave, fall, 1973-74.

³⁴Sabbatical leave 1973-74.

³⁵Through 5-31-73.

³⁶Deceased December 15, 1973.

³⁷Through 6-30-73.

³⁸Sabbatical leave, spring, 1973-74.

³⁹Through 12-31-72.

⁴⁰Retired 8-31-73.

- Robert C. Carson (1960), Ph.D. (Northwestern)
*Professor of Psychology and Professor of Medical
 Psychology in the Department of Psychiatry* 6502 Hunter's Lane
- James H. Carter (1971), M.D. (Howard)
Assistant Professor of Psychiatry 3310 Pine Grove Road
 Raleigh, N. C.
- Reginald D. Carter (1971), Ph.D. (Bowman Gray)
*Assistant Professor of Community Health Sciences and
 Assistant Professor of Physiology* Route 1, 18-A
 Hillsborough, N. C.
- Matthew Cartmill (1969), Ph.D. (Chicago)
Assistant Professor of Anatomy Route 1, Box 329A
- William H. Cartwright (1951), Ph.D. (Minnesota)
Professor of Education 3610 Britt Street
- Ernesto G. Caserta (1970), Ph.D. (Harvard)
Assistant Professor of Romance Languages 2516 Sevier Street
- John H. Casseday (1972), Ph.D. (Indiana)
*Assistant Professor of Otolaryngology in the Department of
 Surgery and Lecturer in Psychology* Apartment 18-J
 2836 Chapel Hill Road
- Ronald Casson (1971), Ph.D. (Stanford)
Assistant Professor of Anthropology 1702 Vista Street
- Thomas R. Cate (1968), M.D. (Vanderbilt)
Associate Professor of Medicine 3123 Camelot Court
- G. S. T. Cavanagh (1962), B.L.S. (McGill)
Professor of Medical Literature 42 Kimberly Drive
- Patrick J. Cavanaugh (1960), M.D. (St. Louis)
Professor of Radiology 1535 Hermitage Court
- Jesse Oscar Cavenar (1971), M.D. (Arkansas)
Associate in Psychiatry 411 Overland Drive
 Chapel Hill, N. C.
- John W. Cell (1962), Ph.D. (Duke)
Associate Professor of History 2101 Dartmouth Drive
- Jack B. Chaddock (1966), Sc.D. (Massachusetts Inst. of Tech.)
Professor of Mechanical Engineering Apartment 3
 2330 Hilton Avenue
- William H. Chafe (1971), Ph.D. (Columbia)
Assistant Professor of History 820 Tinkerbell
 Chapel Hill, N. C.
- Leon E. Chaiken (1952), M.F. (Cornell)
Professor of Forest Management 2737 Dogwood Road
- Arthur C. Chandler, Jr. (1965), M.D. (Duke)
*Associate Professor of Ophthalmology and Associate in
 Anatomy* 3508 Cambridge Road
- ⁴¹Roger C. Chapman (1969), M.A. (California at Berkeley)
Assistant Professor of Forest Biometry 2027 Wa Wa Avenue
- ⁴²James H. Charlesworth (1969), Ph.D. (Duke)
Assistant Professor of Religion 19 Learned Place
- James T. T. Chen (1965), M.D. (National Defense Med. Center, Taipei, Taiwan)
Associate Professor of Radiology 2528 Sevier Street
- Donald B. Chesnut (1965), Ph.D. (California Inst. of Tech.)
Professor of Chemistry 4404 Malvern Road
- Arthur C. Christakos (1963), M.D. (South Carolina)
*Associate Professor of Obstetrics and Gynecology and
 Associate Professor of Community Health Sciences* 3102 Surry Road
- Norman L. Christensen, Jr. (1973), Ph.D. (California at Santa Barbara)
Assistant Professor of Botany 1646 Marion Avenue
- George C. Christie (1967), S.J.D. (Harvard)
Professor of Law Apartment 17-G
 2836 Chapel Hill Road
- Ronald Yan-li Chuang (1972), Ph.D. (California at Davis)
*Assistant Professor of Experimental Medicine and
 Assistant Professor of Pharmacology* Apartment 23-H, II
 2752 Middleton Street
- Giorgio Ciampi (1964), M.A. (Paris Conservatory)
Artist in Residence in the Department of Music 3614 Westover Road
- James R. Clapp (1963), M.D. (North Carolina)
*Professor of Medicine and Associate Professor of
 Physiology* Route 3
 4030 King Charles Street

⁴¹Through 8-11-73.

⁴²Leave of absence, spring, 1973-74.

- Elan Henry Clark (1934)
*Professor of Medical Art in the
 Division of Audiavisual Education* 801 West Maynard Avenue
- ⁴³Henry B. Clark (1966), Ph.D. (Yale)
Associate Professor of Religion 3108 Camelot Court
- Howard Clark (1968), Ph.D. (Maryland)
*Associate Professor of Mechanical Engineering and
 Biomedical Engineering* 19 Oak Drive
- Frederic N. Cleaveland (1971), Ph.D. (Princeton)
Professor of Political Science 1822 North Lakeshore Drive
 Chapel Hill, N. C.
- Jahn M. Clement (1972), Ph.D. (Rensselaer Polytechnic Inst.)
Instructor in Physics 31-C Hally Hills Apartments
- ⁴⁴Enrico Clerici (1972), Ph.D. (Ministry of Public Instruction, Italy)
Visiting Professor of Microbiology and Immunology Apartment 16
 2009 Southwood Drive
- William Porter Cleveland (1972), Ph.D. (Wisconsin)
Assistant Professor of Community Health Sciences 2020 Sunset Avenue
- Edward Clifford (1965), Ph.D. (Minnesota)
*Professor of Medical Psychology in the Department
 of Psychiatry, Associate Professor of Psychology in Plastic
 Surgery in the Department of Surgery, and Lecturer in
 the Department of Psychology* 2535 Sevier Street
- Frank W. Clippinger (1957), M.D. (Washington)
Professor of Orthopaedic Surgery 3514 Rugby Road
- G. Wayne Clough (1969), Ph.D. (California at Berkeley)
Associate Professor of Civil Engineering 1108 Anderson Street
- John L. E. Clubbe (1966), Ph.D. (Columbia)
Associate Professor of English 209 Watts Street
- Jahn M. Clum (1966), Ph.D. (Princeton)
Assistant Professor of English Box 6725, College Station
- Frederick R. Cobb (1971), M.D. (Mississippi)
*Assistant Professor of Medicine and Associate in
 Physiology* 3723 Suffolk Street
- Franklin H. Cocks (1972), Sc.D. (Massachusetts Inst. of Tech.)
Associate Professor of Mechanical Engineering Apartment 22-D
 2836 Chapel Hill Road
- ⁴⁵David Coder (1970), Ph.D. (Cornell)
Assistant Professor of Philosophy 1026 Manmouth Avenue
- Harvey Jay Cahen (1971), M.D. (State Univ. of New York)
Assistant Professor of Medicine 2811 Friendship Circle
- ⁴⁶Harvey Joel Cahen (1972), Ph.D. (Duke)
Associate in Biochemistry 2705 Sarah Avenue
- John Caie (1968), Ph.D. (California at Berkeley)
Assistant Professor of Psychology 2801 Dogwood Road
- James M. Calacino (1973), Ph.D. (State Univ. of New York at Buffalo)
Temporary Instructor in Zoology Apartment 87-C
 3022 Chapel Hill Road
- A. F. David Cole (1972), M.D. (Tarranta)
*Assistant Professor of Anesthesiology and Assistant
 Professor of Obstetrics and Gynecology* 2624 McDowell Street
- Byron K. Cale (1972), M.D. (Cincinnati)
Assistant Professor of Community Health Sciences 237 Knallwood Drive
 Chapel Hill, N. C.
- Robert Taylor Cole (1935), Ph.D. (Harvard)
James B. Duke Research Professor of Political Science 7 Sylvan Road
- T. Bayce Cale (1969), M.D. (North Carolina)
Assistant Professor of Otolaryngology 223 Pineview Road
- Jael G. Calton (1947), Ph.D. (Columbia)
Professor of History 1616 Pinecrest Road
- ⁴⁷Robert Merle Colver (1953), Ed.D. (Kansas)
Associate Professor of Education 2720 Circle Drive
- Norman Francis Conant (1935), Ph.D. (Harvard)
James B. Duke Professor of Microbiology 5622 Garrett Road

⁴³Sabbatical leave 1973-74.

⁴⁴Through 8-31-73.

⁴⁵Through 8-31-73.

⁴⁶Through 6-30-73.

⁴⁷Sabbatical leave, spring, 1973-74.

Anthony Conger (1973), Ph.D. (Illinois)	311 Estes Drive
Visiting Associate Professor of Psychology	Chapel Hill, N. C.
⁴⁸ Judith Conger (1971), Ph.D. (Illinois)	311 Estes Drive
Visiting Assistant Professor of Psychology	Chapel Hill, N. C.
Frank Convery (1971), Ph.D. (State Univ. of New York)	2315 Wilson Street
Assistant Professor of Forest Resource Economics	
Philip J. Cook (1973), Ph.D. (California at Berkeley)	4339 Berini Drive
Assistant Professor of Policy Sciences and Economics	
Samuel DuBois Cook (1966), Ph.D. (Ohio State), LL.D.	2733 Sevier Street
Professor of Political Science	
Wesley A. Cook, Jr. (1971), M.D. (Oregon)	Route 2, Box 160
Assistant Professor of Neurosurgery and Assistant	Chapel Hill, N. C.
Professor of Physiology	
Hallie M. Coppedge (1966), M.S.W. (North Carolina)	3435 Cromwell Road
Associate in Psychiatric Social Work	
Thomas Howard Cordle (1950), Ph.D. (Yale)	916 West Markham Avenue
Professor of Romance Languages	
⁴⁹ Joseph M. Corless (1972), Ph.D. (Duke)	2326 Glendale Avenue
Assistant Professor of Anatomy	
Roger J. Corless (1970), Ph.D. (Wisconsin)	Apartment 10-B
Assistant Professor of Religion	1600 Anderson Street
Bruce A. Corrie (1965), P.E.D. (Indiana)	3223 Haddon Road
Assistant Professor of Physical Education	
Philip Costanzo (1968), Ph.D. (Florida)	2527 Wrightwood Avenue
Associate Professor of Psychology	
John D. Costlow (1959), Ph.D. (Duke)	201 Ann Street
Professor of Zoology	Beaufort, N. C.
Sheila J. Counce (1968), Ph.D. (Edinburgh)	3101 Camelot Court
Associate Professor of Anatomy	
Dario A. Covi (1970), Ph.D. (New York)	1010 Monmouth Avenue
Professor of Art	
Robert Calvin Cox (1942), M.A. (Columbia)	1913 University Drive
Associate Professor of Physical Education	
Linda C. Craig (1972), M.S.N. (North Carolina at Chapel Hill)	2414 West Club Boulevard
Instructor in Nursing	
William T. Creasman (1970), M.D. (Baylor)	2944 Friendship Road
Associate Professor of Obstetrics and Gynecology	
Marion Carlyle Crenshaw (1964), M.D. (Duke)	Route 8, Box 161
E. C. Homblen Associate Professor of Reproductive	Roxboro Road
Biology and Family Planning, Assistant Professor of	
Pediatrics and Associate in Physiology	
Peter Cresswell (1973), Ph.D. (London)	1913 Ward Street
Associate in Immunology	
Elaine Kobrin Crovitz (1965), Ph.D. (Duke)	2745 Montgomery Street
Assistant Professor of Medical Psychology in the Department	
of Psychiatry and Lecturer in Psychology	
Herbert Crovitz (1963), Ph.D. (Duke)	3600 Tremont Drive
Professor of Medical Psychology in the Department of	
Psychiatry and Lecturer in Psychology	
Alvin L. Crumbliss (1970), Ph.D. (Northwestern)	2826 Stuart Drive
Assistant Professor of Chemistry	
William L. Culbertson (1955), Ph.D. (Wisconsin)	Route 7
Professor of Botany	George King Road
William D. Currie (1967), Ph.D. (North Carolina at Chapel Hill)	3611 Randolph Road
Associate Professor of Radiology	
Robert Earl Cushman (1945), B.D., Ph.D. (Yale)	2719 Spencer Street
Research Professor of Systematic Theology	
Ronald Y. Cusson (1970), Ph.D. (California Inst. of Tech.)	Apartment 3-H
Associate Professor of Physics	2716 Middleton Street
Jarir S. Dajani (1971), Ph.D. (Northwestern)	3605 Suffolk Street
Assistant Professor of Civil Engineering	

⁴⁸Through 5-31-73.

⁴⁹Leave of absence, 7-1-73 through 6-30-74.

- William W. Damon (1970), Ph.D. (Cornell)
Assistant Professor of Business Administration 5600 Woodberry Road
- Charles A. Daniels (1970), Ph.D. (Duke)
Assistant Professor of Pathology 4 Sylvan Road
- Ollie B. Davenport (1961), M.S.N. (Western Reserve)
Assistant Professor of Nursing 905 West Knox Street
- Jack Dougan Davidson (1970), M.D. (Columbia)
Associate Professor of Radiology 3506 Westover Road
- David George Davies (1961), Ph.D. (California at Los Angeles)
Professor of Economics 2631 McDowell Street
- ⁵⁰William David Davies (1966), D.D. (Wales)
George Washington Ivey Professor of Advanced Studies
in New Testament and Research in Christian Origins
- Calvin D. Davis (1952), Ph.D. (Indiana)
Associate Professor of History 907 Monmouth Avenue
- David A. Davis (1971), M.D. (Vanderbilt)
Professor of Anesthesiology Kings Mill Road
Chapel Hill, N. C.
- Gifford Davis (1930), Ph.D. (Harvard)
Professor of Romance Languages 2248 Cranford Road
- James Norman Davis (1972), M.D. (Cornell)
Assistant Professor of Medicine (Neurology) 3509 Suffolk Street
- Lucy Tolbert Davis (1969), Ed.D. (Columbia)
Associate Professor of Education and Clinical Associate
in Therapeutic Education, Department of Psychiatry 705 Gimghoul Road
Chapel Hill, N. C.
- Ron W. Davis (1970), Ed.D. (Columbia)
Associate in Community Health Sciences 223 Hillcrest Circle
Chapel Hill, N. C.
- Walter Etchells Davis (1972), M.D. (Duke)
Assistant Professor of Medicine 3815 St. Marks Road
- Jeffrey R. Dawson (1972), Ph.D. (Case Western Reserve)
Associate in Immunology 902 Clarion Drive
- Eugene Davis Day (1962), Ph.D. (Delaware)
Professor of Immunology and
Professor of Experimental Surgery 2727 McDowell Street
- Nell L. Deaver (1972), B.S. (Sargent)
Associate in Physical Therapy 3428 Donnigale Avenue
- John Essary Dees (1939), M.D. (Virginia)
Professor of Urology 413 Carolina Circle
- Susan Coons Dees (1939), M.D. (Johns Hopkins)
Professor of Pediatrics 413 Carolina Circle
- David C. Dellinger (1968), Ph.D. (Stanford)
Associate Professor of Business Administration 19 Heath Place
- ⁵¹Walter E. Dellinger, III (1969), LL.B. (Yale)
Professor of Law 4339 Berini Drive
- Frank De Lucia (1969), Ph.D. (Duke)
Assistant Professor of Physics 1618 North Duke Street
- Neil B. deMarchi (1971), Ph.D. (Australian National Univ., Canberra)
Assistant Professor of Economics 1304 Virginia Avenue
- William J. A. DeMaria (1951), M.D. (Duke)
Professor of Pediatrics 1126 Woodburn Road
- A. Leigh DeNeef (1969), (Pennsylvania State)
Assistant Professor of English 3406 Denise Street
- Vincent W. Dennis (1973), M.D. (Georgetown)
Associate in Medicine 3806 Hillgrand Street
- Betsy J. Denny (1971), B.S. (North Carolina)
Associate in Physical Therapy 5201 Peppercorn
Route 4, Box 526
Hillsborough, N. C.
- Sara Jamison Dent (1965), M.D. (South Carolina)
Professor of Anesthesiology Hillsborough, N. C.
- Gretchen J. Dery (1969), M.S. (Catholic Univ.)
Assistant Professor of Nursing 4611 Blanchard Road
- Frank Traver deVyver (1935), Ph.D. (Princeton)
Professor of Economics 8 Sylvan Road

⁵⁰Sabbatical leave, fall, 1973-74; leave of absence, spring, 1973-74.

⁵¹Leave of absence 1973-74.

- Irving T. Diamond (1958), Ph.D. (Chicago)
James B. Duke Professor of Psychology, Professor
of Physiology, and Lecturer in Anatomy 2745 McDowell Road
- Joseph Di Bona (1967), Ph.D. (California)
Associate Professor of Education 1123 Woodburn Road
- Robert L. Dickens (1949), M.S. (North Carolina), C.P.A., LL.D.
Professor of Accounting in the Department of
Monogement Sciences 2717 Circle Drive
- Kenneth Robert Diehl (1972), D.M.D. (Harvard)
Assistant Professor of Orthodontics in the Department
of Surgery 2961 Welcome Drive
- Alice E. Dietz (1970), M.P.H. (North Carolina)
Assistont Professor of Nursing and Associate in
Community Health Sciences 1705 Allard Road
Chapel Hill, N. C.
- Arif Dirlik (1971), Ph.D. (Rochester)
Assistant Professor of History 2101 Strebtor Road
- Mundrathi Divadeenam (1973), Ph.D. (Duke)
Instructor in Physics 3927 Linden Terrace
Apartment 14
- Bruce W. Dixon (1970), M.D. (Pittsburgh)
Assistant Professor of Medicine 2117 Bedford Avenue
- Richard H. Dixon (1972), M.D. (Duke)
Associate in Medicine 5216 Partridge Street
- Frank C. Dorsey (1971), Ph.D. (Duke)
Assistant Professor of Community Health Sciences and
Assistant Professor of Pothology 204 Forestwood Drive
- W. Bruce Douglas, Jr. (1973), Ph.D. (California at Davis)
Assistant Professor of Physiology 1509 Hollywood Street
- Jonathan Dranov (1973), M.D. (Pennsylvania)
Associate in the Department of Medicine and Associate in
Community Health Sciences 4008 Hillgrand Drive
- William H. Dray (1973), D.Phil. (Oxford)
Professor of Philosophy 2719 McDowell Road
- Francis George Dressel (1929), Ph.D. (Duke)
Professor of Mothematics 2502 Francis Street
- Chancellor Driscoll (1969), M.S.S.W. (Louisville)
Associate in Psychiotric Sociol Work 2717 Augusta Drive
- Bernard I. Duffey (1963), Ph.D. (Ohio State)
Professor of English 2732 Dogwood Drive
- Kenneth Lindsay Duke (1940), Ph.D. (Duke)
Associate Professor of Anotomy 2736 McDowell Street
- Ian Douglas Duncan (1972), M.B. Ch.B. (St. Andrews Univ., Scotland)
Associate in Obstetrics and Gynecology 1210 Anderson Street
- ⁵²Robert F. Durden (1952), Ph.D. (Frinceton)
Professor of History 2532 Wrightwood Avenue
- Jiri Dvorak (1967), Ph.D. (Brown)
Associate Professor of Civil Engineering 2956 Friendship Drive
- ⁵³James Millard Eaton, Jr. (1972), M.D. (Emory)
Assistant Professor of Urology in the Department of Surgery 3113 Camelot Court
26-B Davie Circle
- Elaine M. Eckel (1971), B.S. (Pennsylvania)
Associate in Physicol Therapy Chapel Hill, N. C.
- Carol O. Eckerman (1972), Ph.D. (Columbia)
Assistant Professor of Psychology 301 Hoot Owl Lane
Chapel Hill, N. C.
- Ruth Buchanan Eddy (1952), M.S. (Smith)
Associate Professor of Physicol Education 702 Louise Circle
- Curtis Drew Edwards (1972), Ph.D. (Florida State)
Assistant Professor of Medical Psychology in the
Department of Psychiatry and Associate in Pediotics 906 West Maynard Avenue
Apartment L-1
- James Michael Efird (1962), Ph.D. (Duke)
Associate Professor of Biblical Longuoges and Interpretotions 2800 Croasdaile Drive
- ⁵⁴William B. Eisenhardt (1970), B.S. (U.S. Naval Academy)
Visiting Assistant Professor of Novol Science 2414 Sparwood Drive

⁵²Sabbatical leave 1973-74

⁵³Through 6-30-73.

⁵⁴Through 10-31-73.

- Kenneth E. Ekman (1973), Ph.D. (Massachusetts Inst. of Tech.)
Instructor in Mathematics Apartment D-2
1312 Wyldewood Road
- Jane G. Elchlepp (1960), Ph.D. (Chicago)
Associate Professor of Pathology Route 1, Box 77
Cornwallis Road
- Albert F. Eldridge (1970), Ph.D. (Kentucky)
Assistant Professor of Political Science Apartment 20-F
200 Seven Oaks Road
- Howard L. Elford (1969), Ph.D. (Cornell)
Assistant Professor of Experimental Medicine and
Assistant Professor of Pharmacology Apartment 14
18 Balmoray Court
- ⁵⁵William S. Elias (1972), M.D. (Vanderbilt)
Associate in Medicine 4023 Deepwood Circle
- Everett H. Ellinwood, Jr. (1966), M.D. (North Carolina at Chapel Hill)
Professor of Psychiatry and Assistant Professor of
Pharmacology 3519 Tonbridge Way
- George John Ellis, III (1970), M.D. (Harvard)
Assistant Professor of Medicine 2743 Sevier Street
- Ernest Elsevier (1950), M.S.M.E. (Georgia Inst. of Tech.)
Associate Professor of Mechanical Engineering 2412 Wrightwood Avenue
- ⁵⁶Carl Erickson (1966), Ph.D. (Rutgers)
Associate Professor of Psychology 106 Newell Street
- Harold P. Erickson (1970), Ph.D. (Johns Hopkins)
Assistant Professor of Anatomy 1108 Minerva Avenue
- Robert P. Erickson (1961), Ph.D. (Brown)
Associate Professor of Psychology and Associate Professor
of Physiology 103-C Colonial Apartments
- Charles W. Erwin (1969), M.D. (Texas)
Associate Professor of Psychiatry 15 Scott Place
- Antonio Valentino Escueta (1970), M.D. (Univ. of St. Thomas, Philippines)
Assistant Professor of Medicine and Assistant
Professor of Physiology and Pharmacology 1601 Kent Street
- E. Harvey Estes, Jr. (1953), M.D. (Emory)
Professor of Medicine and Professor of
Community Health Sciences 3542 Hamstead Court
- Evan A. Evans (1973), Ph.D. (California at San Diego)
Assistant Professor of Biomedical Engineering and
Assistant Professor of Experimental Orthopedics Apartment 22-I
2836 Chapel Hill Road
- ⁵⁷J. David G. Evans (1972), Ph.D. (Queen's College, England)
Visiting Associate Professor of Philosophy 912 Anderson Street
- ⁵⁸John C. Evans (1967), M.D. (Michigan)
Professor of Radiology 1730 Allard Road
Chapel Hill, N. C.
- Lawrence E. Evans (1963), Ph.D. (Johns Hopkins)
Associate Professor of Physics 1020 Demerius Street
- John Wendell Everett (1932), Ph.D. (Yale)
Professor of Anatomy 1105 Woodburn Road
- Robinson Oscar Everett (1956), LL.M. (Duke)
Professor of Law 601 1-A LaSalle Street
- Mark Evers (1973), M.A. (Michigan)
Instructor in Sociology 2735 McDowell Road
- Isabelle R. Faeder (1972), Ph.D. (Cornell)
Lecturer in the Department of Anatomy Apartment 14-E
2748 Middleton Street
- Henry A. Fairbank (1962), Ph.D. (Yale)
Professor of Physics 1515 Pinecrest Road
- Carmen M. Falcone (1946), M.A. (Ohio State)
Professor of Physical Education 1402 Woodburn Road
- W. Edwin Fann (1971), M.D. (Alabama)
Assistant Professor of Psychiatry 3726 Saint Marks Road
- Joseph C. Farmer, Jr. (1971), M.D. (Duke)
Assistant Professor of Otolaryngology 3020 Harriman Avenue
- Donn Michael Farris (1959), M.Div. (Duke)
Professor of Theological Bibliography 921 Buchanan Boulevard

⁵⁵Through 6-30-73.

⁵⁶Sabbatical leave, fall, 1973-74; leave of absence, spring, 1973-74.

⁵⁷Through 5-31-73.

⁵⁸Through 7-31-73.

- Thomas R. Faschingbauer (1973), Ph.D. (North Carolina)
Associate in *Medicol Psychology in the Department of Psychiatry* Route 1, Box 280
Black Mountain, N. C.
- ⁵⁹Robert A. Federchuck (1969), A.B. (Syracuse)
Associate in *Physicol Therapy* 2209 Elmwood Avenue
- John Morton Fein (1950), Ph.D. (Harvard)
Professor of *Romonce Languages* 2726 Montgomery Street
- Jerome Feldman (1968), M.D. (Northwestern)
Associate Professor of *Medicine* 2744 Sevier Street
- Robert E. Fellows (1966), M.D. (McGill), Ph.D. (Duke)
Associate Professor of *Physiology* and Assistant Professor of *Medicine* 3106 Ridge Road
- Arthur Bowles Ferguson (1939), Ph.D. (Cornell)
Professor of *History* 22 Lebanon Circle
- Oliver W. Ferguson (1957), Ph.D. (Illinois)
Professor of *English* 1212 Arnette Avenue
- Saleh A. Fetouh (1972), D.P.H. (North Carolina at Chapel Hill)
Assistant Professor of *Community Health Sciences* and Associate in *Rodiology* 2001 Dartmouth Drive
- Bernard F. Fetter (1951), M.D. (Duke)
Professor of *Pothology* 3836 Somerset Drive
- Gregory Fischer (1973), Ph.D. (Michigan)
Assistant Professor of *Policy Sciences* and *Psychology* 1300 Oakland Avenue
- Peter G. Fish (1969), Ph.D. (Johns Hopkins)
Associate Professor of *Political Science* 1006 Urban Avenue
- Ronald L. Fishbaugh (1973), M.S. (Juilliard School of Music)
Lecturer in *Music* 1609 Hollywood Street
- Joel L. Fleishman (1971), LL.M. (Yale)
Associate Professor of *Law* 205 Wood Circle
Chapel Hill, N. C.
- Anne Flowers (1972), Ed.D. (Duke)
Associate Professor of *Education* 2727 Spencer Street
- Maxine Rogers Flowers (1971), M.S. (Columbia)
Associate in *Psychiatric Social Work* 128 Pinecrest Road
- Walter L. Floyd (1959), M.D. (Johns Hopkins)
Associate Professor of *Medicine* 3556 Hamstead Court
- ⁶⁰Donald J. Fluke (1958), Ph.D. (Yale)
Professor of *Zoology* 2703 Sevier Street
- Walter H. Forman (1973), M.D. (Florida)
Associate in the *Department of Rodiology* 1610 Hollywood Street
- Lloyd R. Fortney (1964), Ph.D. (Wisconsin)
Associate Professor of *Physics* 2 Scott Place
- Ellen Gwendolyn Fortune (1964), M.A. (Western Reserve)
Professor of *Nursing* 5203 Shady Bluff Road
- Richard Forward (1971), Ph.D. (California at Santa Barbara)
Assistant Professor of *Zoology* 414 Ann Street
Beaufort, N. C.
- ⁶¹Ludmila A. Foster (1970), Ph.D. (Harvard)
Assistant Professor of *Slovic Longuoges* Apartment 19-D
2748 Middleton
- John Alvis Fowler (1953), M.D. (Bowman Gray)
Professor of *Psychiotry* and Assistant Professor of *Pediatrics* 2721 Spencer Street
- Wallace Fowlie (1964), Ph.D. (Harvard)
James B. Duke Professor of *Romonce Longuoges* 17-D Valley Terrace Apartments
- Richard G. Fox (1968), Ph.D. (Michigan)
Professor of *Anthropology* Anthropology Department
347 Sociology-Psychology
- Donald G. Frederick (1973), D.B.A. (Washington Univ.)
Visiting Professor of *Business Administration* 2740 Montgomery Street
- Irwin Fridovich (1958), Ph.D. (Duke)
Professor of *Biochemistry* 3517 Courtland Drive
- Robert O. Friedel (1970), M.D. (Duke)
Associate Professor of *Psychiotry* and Assistant Professor of *Phormocology* 1614 Pinecrest Road

⁵⁹Through 4-30-73.

⁶⁰Sabbatical leave 1973-74

⁶¹Through 8-31-73.

- Ruth C. Friedberg (1972), M.A. (North Carolina)
Assistant Professor of Music 3415 Hope Valley Road
- Ernestine Friedl (1973), Ph.D. (Columbia)
Professor of Anthropology 3080 Colony Road
- ⁶²Carl J. Friedrich (1973), Ph.D. (Heidelberg)
Visiting Distinguished Professor of Political Science 1515 Pinecrest Road
- John A. Friedrich (1963), Ph.D. (Michigan State)
Professor of Physical Education 2953 Welcome Drive
- Thomas Eliot Frothingham (1973), M.D. (Harvard)
Professor of Pediatrics and Professor of Community
Health Sciences 204 Chateau Road
- Donald L. Fry (1971), M.D. (Harvard)
Visiting Professor of Physiology 5512 Lincoln Street
Bethesda, Maryland
- William J. Furbish (1954), M.S. (Wisconsin)
Associate Professor of Geology Route 2
Hillsborough, N. C.
- Kathlyn Anne Gaines (1973), M.S.N. (Florida)
Assistant Clinical Professor of Nursing 30 Pinehurst Road
Asheville, N. C.
- Robert W. Gaines, Jr. (1973), M.D. (Duke)
Assistant Professor of Orthopaedic Surgery 4601 Pinedale Drive
- Stanley A. Gall (1973), M.D. (Minnesota)
Associate Professor of Obstetrics and Gynecology 3902 St. Marks Road
- Johnnie L. Gallemore, Jr. (1969), M.D. (Emory)
Assistant Professor of Psychiatry 2945 Friendship Road
- ⁶³Thomas Muir Gallie, Jr. (1954-55, 1956), Ph.D. (Rice)
Professor of Computer Science 2740 Montgomery Street
- Harry A. Gallis (1973), M.D. (Duke)
Associate in Medicine 4007 Hillgrand Drive
- John T. Garbutt (1969), M.D. (Temple)
Assistant Professor of Medicine 3836 Churchill Circle
- Miguel Garci-Gomez (1973), Ph.D. (Catholic Univ.)
Associate Professor of Romance Languages 1108 Stonehedge Avenue
Apartment 15-D
- Devendra P. Garg (1972), Ph.D. (New York Univ.)
Professor of Mechanical Engineering 2748 Middleton Street
- Charles David Gasswint (1972), Ph.D. (Oklahoma)
Associate in Medical Psychology in the Department of
Psychiatry 3603 Mossdale Avenue
- Cebron A. Gaustad (1970), Ph.D. (North Carolina at Chapel Hill)
Associate in Medical Psychology 408 Hammond Street
- Raymond Gavins (1970), Ph.D. (Virginia)
Assistant Professor of History 2227 Emerson Place
- Peter Gebel (1973), M.D. (Harvard)
Assistant Professor of Medicine 1032 Sycamore Street
- Ila H. Gehman (1959), Ed.D. (Pennsylvania State)
Associate Professor of Medical Psychology in Department
of Psychiatry and Lecturer in Psychology 2703 Spencer Street
- W. Scott Gehman, Jr. (1954), Ph.D. (Pennsylvania State)
Professor of Psychology in Education 2703 Spencer Street
- John A. Gehweiler (1967), M.D. (Duke)
Associate Professor of Radiology 3551 Hamstead Court
- Janet Gay Gelein (1970), M.S. (Duke)
Assistant Professor of Nursing Route 7, Box 269A
- W. Doyle Gentry (1969), Ph.D. (Florida State)
Associate Professor of Medical Psychology in the
Department of Psychiatry, and Lecturer in Psychology 212 Brooklane Drive
- Rhett Truesdale George, Jr. (1957), Ph.D. (Florida)
Assistant Professor of Electrical Engineering Route 1, Box 318
- Nicholas G. Georgiade (1951), D.D.S., M.D. (Duke)
Professor of Plastic, Maxillofacial, and Oral Surgery 2523 Wrightwood Avenue
- Gerald E. Gerber (1962), Ph.D. (Northwestern)
Associate Professor of English 3115 Stanford Drive
- Susan Gerhart (1973), Ph.D. (Carnegie-Mellon)
Assistant Professor of Computer Science Apartment B-12
3037 Carver Street

⁶²Through 5-31-73.

⁶³Sabbatical leave 1973-74.

- Duilio Giannitrapani (1972), Ph.D. (Clark)
Associate Professor of Medical Psychology in the
Department of Psychiatry Highland Hospital
Asheville, N. C.
- Daniel T. Gianturco (1966), M.D. (Buffalo)
Associate Professor of Psychiatry and Assistant
Professor of Community Health Sciences 2925 Friendship Road
- David B. Gilbert (1972), M.D. (Colorado)
Associate in Medicine 3212 Pinafore Drive
Apartment 17-C
- Terence James Gilbert (1972), M.B. (Sydney Univ., Australia)
Assistant Professor of Anesthesiology 200 Seven Oaks Road
- ⁶⁴Harlan Raymond Giles (1972), M.D. (Duke)
Associate in Obstetrics and Gynecology 5215 Partridge Street
- Hal G. Gillespie (1971), M.D. (Med. Coll. of South Carolina)
Assistant Professor of Psychiatry 204 Robin Hood Road
Asheville, N. C.
- Richard E. Gillespie (1971), B.D. (San Francisco Theological Seminary)
Instructor in Historical Theology 2106 Woodrow Street
- Nicholas W. Gillham (1968), Ph.D. (Harvard)
Professor of Zoology 1211 Woodburn Road
- ⁶⁵George W. Gillmor (1972), LL.B. (Boston)
Assistant Professor of Law Law School
- John D. Giragos (1968), M.D. (American Univ. Med. School, Beirut, Lebanon)
Assistant Professor of Psychiatry 2803 Friendship Road
- Sherwood Githens, Jr. (1962), Ph.D. (North Carolina)
Professor of Education 4427 Chapel Hill Road
- Carol A. Glackin (1973), M.S.N. (North Carolina at Chapel Hill)
Associate in the Department of Community Health Sciences H-7 Camelot
Chapel Hill, N. C.
- James F. Glenn (1963), M.D. (Duke)
Professor of Urology 27 Oak Drive
- Joseph Leonard Goldner (1950), M.D. (Nebraska)
Professor of Orthopaedic Surgery 602 East Forest Hills Boulevard
- Lowell A. Goldsmith (1973), M.D. (Downstate Medical Center, New York)
Associate Professor of Medicine (Dermatology) 2932 Welcome Drive
Route 3, Box 197
- ⁶⁶Leonard J. Goldwater (1968), M.D. (New York)
Professor of Community Health Sciences Chapel Hill, N. C.
- Harold R. Gollberg (1972), M.D. (Texas)
Associate in Psychiatry 13 West Avon Parkway
Asheville, N. C.
- Richard A. Goodling (1959), Ph.D. (Pennsylvania State)
Professor of Postoral Psychology Route 7, Box 308
Farrington Road
- Jack K. Goodrich (1965), M.D. (Tennessee)
Professor of Radiology 2940 Welcome Drive
- ⁶⁷Craufurd D. Goodwin (1962), Ph.D. (Duke)
Professor of Economics 2256 Cranford Road
- Walter Gordy (1946), Ph.D. (North Carolina), LL.D.
James B. Duke Professor of Physics 2521 Perkins Road
- John A. Goree (1959), M.D. (Duke)
Professor of Radiology and Associate in Anatomy Route 7, Box 223A
- Alfred T. Goshaw (1973), Ph.D. (Wisconsin)
Assistant Professor of Physics Apartment 7-B
610 LaSalle Street
- Henry G. Grabowski (1972), Ph.D. (Princeton)
Associate Professor of Economics 6 Shelley Place
- ⁶⁸Thomas H. Graf (1973), Ph.D. (Tubingen, Germany)
Associate in Virology, Department of Microbiology
and Immunology Apartment 11-E
600-3 LaSalle Street
- Daniel A. Graham (1969), Ph.D. (Duke)
Assistant Professor of Economics 2026 Pershing Street
- Doyle G. Graham (1970), Ph.D. (Duke)
Assistant Professor of Pathology 816 Watts Street
- Pauline Gratz (1969), Ed.D. (Columbia)
Professor of Human Ecology in Nursing 220 Dacian Avenue

⁶⁴Leave of absence 1-1-73 through 12-31-74.

⁶⁵Leave of absence 1973-74.

⁶⁶Through 1-1-73.

⁶⁷Leave of absence 1973-74.

⁶⁸Through 7-31-73.

Brent L. Gravatt (1973), B.S. (U. S. Naval Academy) Visiting Assistant Professor of <i>Novol Science</i>	Apartment 17 2132 Bedford Street
Duane Green (1973), Ph.D. (Southern California) Assistant Professor of <i>Medicol Psychology</i> in the Department of <i>Psychiotry</i>	41 Long Street Asheville, N. C.
James Clifford Green (1971), M.D. (Illinois) Associate in <i>Psychiotry</i>	32 Robinhood Road Asheville, N. C.
⁶⁹ James Davis Green (1970), M.D. (Tulane) Assistant Professor of <i>Rodiology</i>	2511 Sevier Street
Robert Lee Green, Jr. (1960), M.D. (Hahnemann) Professor of <i>Psychiotry</i>	2300 Whitley Drive
Robert W. Green (1973), Ph.D. (Hawaii) Associate in <i>Experimental Surgery</i>	Apartment 9-E 600-5 LaSalle Street
Ronald C. Greene (1958), Ph.D. (California Inst. of Tech.) Associate Professor of <i>Biochemistry</i>	1014 Norwood Avenue
Joseph C. Greenfield (1962), M.D. (Emory) Professor of <i>Medicine</i> ond Assistant Professor of <i>Physiology</i>	1212 Virginia Avenue
⁷⁰ John R. Gregg (1957), Ph.D. (Princeton) Professor of <i>Zoology</i>	3702 Randolph Road
Jean Flynn Gregory (1973), M.S.W. (Connecticut) Associate in <i>Psychiotric Social Work</i> in the Department of <i>Psychiotry</i>	2401 Sprunt Street
Eugene Greuling (1948), Ph.D. (Indiana) Professor of <i>Physics</i>	2414 Perkins Road
John Francis Griffith (1969), M.D. (Saskatchewan Univ.) Associate Professor of <i>Pediotrics</i> ond Assistant Professor of <i>Medicine</i>	1415 North Gregson Street
John H. Grimes (1970), M.D. (Northwestern) Assistant Professor of <i>Urology</i>	3420 Sheridan Drive
Keith Sanford Grimson (1930-42; 1945), M.D. (Rush) Professor of <i>Surgery</i>	3313 Devon Road
Samson R. Gross (1960), Ph.D. (Columbia) Professor of <i>Genetics</i> ond <i>Biochemistry</i>	2411 Prince Street
Herman Grossman (1971), M.D. (Columbia) Professor of <i>Rodiology</i> ond Professor of <i>Pediotrics</i>	405 Lake Shore Lane Chapel Hill, N. C.
Kazimierz Grzybowski (1967), S.J.D. (Harvard) Professor of <i>Politol Science</i> ond Part-time Professor in the <i>Low School</i>	2605 University Drive
Walter R. Guild (1960), Ph.D. (Yale) Professor of <i>Biophysics</i>	2625 McDowell Street
Robert B. Gunn (1971), M.D. (Harvard) Assistant Professor of <i>Physiology</i> ond <i>Phormocology</i>	3408 Cromwell Road
J. Caulie Gunnells (1962), M.D. (South Carolina) Professor of <i>Medicine</i>	3317 Devon Road
John Gutknecht (1969), Ph.D. (North Carolina) Assistant Professor of <i>Physiology</i>	123 Cresent Drive Beaufort, N. C.
William F. Gutknecht (1971), Ph.D. (Purdue) Assistant Professor of <i>Chemistry</i>	Apartment 83B 3022 Chapel Hill Road
Laura E. T. Gutman (1972), M.D. (Stanford) Assistant Professor of <i>Pediotrics</i>	2403 Wrightwood Avenue
Robert A. Gutman (1971), M.D. (Florida) Assistant Professor of <i>Medicine</i>	2403 Wrightwood Avenue
Norman Guttman (1951), Ph.D. (Indiana) Professor of <i>Psychology</i>	201 Woodridge Drive
Robert L. Habig (1969), Ph.D. (Purdue) Assistant Professor of <i>Clinical Biochemistry</i>	514 Marshall Way
Donald B. Hackel (1960), M.D. (Harvard) Professor of <i>Pothology</i>	4018 Bristol Road
Herbert Hacker, Jr. (1965), Ph.D. (Michigan) Associate Professor of <i>Electrical Engineering</i>	2739 Montgomery Street
Per-Otto Hagen (1970), F.H.W.C. (Watt, Edinburgh, Scotland) Associate Professor of <i>Experimental Surgery</i> ond Adjunct Assistant Professor of <i>Biochemistry</i>	1120 Little Creek Road

⁶⁹Through 7-15-73.

⁷⁰Sabbatical leave, fall, 1973-74.

- ⁷¹Robert L. Hagerman (1971), Ph.D. (Rochester)
Assistant Professor of Business Administration 1920 Bedford Avenue
Route 1
- ⁷²Ellis P. Hagler (1936)
Instructor in Physical Education 1715 West Cornwallis Road
305 Yorktown Drive
Chapel Hill, N. C.
- ⁷³David R. Halbert (1971), M.D. (Pennsylvania)
Associate in Obstetrics and Gynecology
Allen S. Hall (1973), Ph.D. (Ohio State)
Clinical Associate in the Department of Surgery 383 South LaSalle Street
- Dwight Hubert Hall (1968), Ph.D. (Purdue)
Assistant Professor of Biochemistry 3816 Hillgrand Drive
- Hugh Marshall Hall (1952), Ph.D. (Texas)
Professor of Political Science 613 Swift Avenue
Apartment 4-G
200 Seven Oaks Road
- Joanne E. Hall (1972), M.S. (Ohio State)
Associate Professor of Nursing
- Kenneth D. Hall (1958), M.D. (Duke)
Professor of Anesthesiology 2715 Montgomery Street
Box 6636
College Station
- Louise Hall (1931), Ph.D. (Radcliffe)
Professor of Architecture
- William C. Hall (1970), Ph.D. (Duke)
Associate Professor of Psychology and Assistant Professor
of Anatomy 129 Pinecrest Road
- John Hamilton Hallowell (1942), Ph.D. (Princeton), Litt.D.
Professor of Political Science 3606 Darwin Road
- ⁷⁴Gerald Myron Halprin (1970), M.D. (Wayne State)
Associate in Medicine 227 Seven Oaks Road
40 Park Avenue, 17E
New York, New York
- ⁷⁵Iain Hamilton (1962), B.M. (London)
Mory Duke Biddle Professor of Music
- John D. Hamilton (1971), M.D. (Colorado)
Assistant Professor of Medicine 3300 East Oak Drive
- Michael Hamilton (1971), M.P.H. (North Carolina at Chapel Hill)
Associate in Community Health Sciences and Clinical
Associate in Medicine 105 Old Oxford Road
Chapel Hill, N. C.
- Elliott Bryan Hammett (1973), M.D. (Duke)
Associate in Psychiatry 3327 Hope Valley Road
- Charles B. Hammond (1968), M.D. (Duke)
Associate Professor of Obstetrics and Gynecology 2827 McDowell
- William E. Hammond (1968), Ph.D. (Duke)
Associate Professor of Community Health Sciences and
Assistant Professor of Biomedical Engineering 10 Forrestdale Drive
- Moo Young Han (1967), Ph.D. (Rochester)
Associate Professor of Physics 615 Duluth Street
- ⁷⁶Philip Handler (1939), Ph.D. (Illinois)
James B. Duke Professor of Biochemistry and Nutrition 2529 Perkins Road
- Stuart Handwerker (1971), M.D. (Maryland)
Assistant Professor of Pediatrics 2951 Friendship Road
- John Kennedy Hanks (1954), M.A. (Columbia)
Professor of Music and Lecturer in Church Music 1810 Glendale Avenue
- ⁷⁷Frank Allen Hanna (1948), Ph.D. (Wisconsin)
Professor of Economics 2239 Cranford Road
- ⁷⁸Joseph D. Harbaugh (1973), LL.M. (Georgetown)
Associate Professor of Law 3106 Devon Road
- ⁷⁹Elizabeth B. Harkins (1968), M.S.W. (Pittsburgh)
Associate in Psychiatric Social Work 6 Buena Vista Road
Asheville, N. C.
- William R. Harlan, Jr. (1972), M.D. (Med. Coll. of Virginia)
Professor of Community Health Sciences and Professor of Medicine 3908 St. Marks Road

⁷¹Through 8-31-73.

⁷²Retired 8-31-73.

⁷³Through 6-30-73.

⁷⁴Through 6-30-73.

⁷⁵Leave of absence, spring, 1973-74.

⁷⁶Leave of absence 7-1-69 through 6-30-74.

⁷⁷Retirement 2-28-73.

⁷⁸Leave of absence, spring, 1972-73.

⁷⁹Through 3-15-73.

- Charles M. Harman (1961), Ph.D. (Wisconsin)
Professor of Mechanical Engineering 2620 McDowell Street
- Merel M. Harmel (1971), M.D. (Johns Hopkins)
Professor of Anesthesiology 3434 Rugby Road
- Ellwood Scott Harrar (1936), Ph.D. (Syracuse), Sc.D.
James B. Duke Professor of Wood Science 2228 Cranford Road
- John M. Harrelson (1973), M.D. (Duke)
Assistant Professor of Orthopaedics 2019 Wilson Street
- Philip D. Harriman (1968), Ph.D. (California at Berkeley)
Assistant Professor of Biochemistry 2713 Stuart Drive
- Cecil Craig Harris (1967), M.S. (Tennessee)
Associate Professor of Radiology 2910 Welcome Drive
- Harold Joseph Harris (1960), M.D. (Long Island Coll. of Medicine)
*Associate Professor of Psychiatry and Assistant
 Professor of Pediatrics* 2502 Wrightwood Avenue
- Jerome Sylvan Harris (1936), M.D. (Harvard)
*J. Buren Sidbury Professor of Pediatrics
 and Associate Professor of Biochemistry* Route 2, Box 427-AA
 Pleasant Green Road
- ⁸⁰Robert B. Hartford (1968), Ph.D. (Cornell)
Assistant Professor of Sociology 2729 Circle Drive
- Gerald W. Hartwig (1970), Ph.D. (Indiana)
Associate Professor of History 3324 Rolling Hill Road
- ⁸¹William B. Harvey (1972), J.D. (Michigan)
Visiting Professor of Law Apartment 21-B
 2748 Middleton Street
- William John Harvey (1961), B.S. (Appalachian)
Assistant Professor of Physical Education 5118 Russell Road
- George Corbin Harwell (1935), Ph.D. (Duke)
Associate Professor of English 2115 Wilson Street
- Albert E. Hathaway (1970), M.D. (Hahnemann)
Associate in Community Health Sciences 711 Staley Drive
 Raleigh, N. C.
- Clark C. Havighurst (1964), J.D. (Northwestern)
Professor of Law 3610 Dover Road
- Thomas Havrilesky (1969), Ph.D. (Illinois)
Associate Professor of Economics 1508 Alabama Avenue
- David Miller Hawkins (1972), M.D. (Duke)
Assistant Professor of Psychiatry Route 7, Box 194
 Old Erwin Road
- Hal K. Hawkins (1973), M.D. (Duke)
Assistant Professor of Pathology 2340 Anthony Drive
- Willis D. Hawley (1972), Ph.D. (California at Berkeley)
*Assistant Professor of Policy Sciences and Political
 Science* 306 Burlage Circle
 Chapel Hill, N. C.
- ⁸²Eleanor de Grange Heath (1972), M.S.W. (North Carolina at Chapel Hill)
Associate in Psychiatric Social Work 110 Cherokee Circle
 Chapel Hill, N. C.
- ⁸³William S. Heckscher (1966), Ph.D. (Hamburg)
Benjamin N. Duke Professor of Art P. O. Box 6877
 College Station
- ⁸⁴Henry Hellmers (1965), Ph.D. (California at Berkeley)
Professor of Botany and Professor of Forestry 1646 Marion Avenue
- ⁸⁵Paul A. Helminger (1972), Ph.D. (Duke)
Instructor and Research Associate in Physics 122 Andrews Road
- Franklin G. Hempel (1973), Ph.D. (Texas)
Assistant Professor of Physiology 1410 Acadia Street
- Robert W. Henkens (1968), Ph.D. (Yale)
Associate Professor of Chemistry 2116 Pershing Street
- ⁸⁶James Donald Henry (1960), M.M. (Indiana)
Assistant Professor of Music 311 West Delafield Street
- Stuart C. Henry (1959), Ph.D. (Duke)
Professor of American Christianity K-1-A Duke University Apartments

⁸⁰Leave of absence 1973-74.

⁸¹Through 8-31-73.

⁸²Through 5-31-73.

⁸³Sabbatical leave, spring, 1973-74.

⁸⁴Sabbatical leave 1973-74.

⁸⁵Through 5-31-73.

⁸⁶Sabbatical leave, spring, 1973-74.

- C. Ward Henson (1967), Ph.D. (Massachusetts Inst. of Tech.)
Assistant Professor of Mothematics 2101 Englewood Avenue
- S. Duncan Heron, Jr. (1950), Ph.D. (North Carolina)
Professor of Geology 4425 Kerley Road
- ⁸⁷David Guy Herr (1967), Ph.D. (North Carolina)
Assistant Professor of Mathematics 3112 Camelot Court
- Frederick L. Herzog (1960), Th.D. (Princeton)
Professor of Systemotic Theology 2936 Chapel Hill Road
- Kathryn A. Hesse (1972), M.S.N. (Duke)
Instructor in Nursing 2400 Alabama Avenue
- Donna Hewitt (1973), M. Nurs. (South Carolina)
Instructor in Nursing 106 Woodridge Drive
Box 3128
Duke Hospital
- ⁸⁸Siegfried Heyden (1966), M.D. (Berlin)
Professor of Community Health Sciences
- Albert Heyman (1953), M.D. (Maryland)
Professor of Medicine 1216 Woodburn Road
- Dorothy K. Heyman (1971), M.S.W. (Pennsylvania)
Assistant Professor of Psychiatric Sociol Work 1216 Woodburn Road
- Jacqueline Hijmans (1965), M.D. (State Univ., Leiden, Holland)
Assistant Professor of Medicine ond Instructor in Physiology Route 2, Box 427-AA
Pleasant Green Road
- Gale B. Hill (1967), Ph.D. (Duke)
Assistant Professor of Obstetrics ond Gynecology ond
Assistant Professor of Microbiology Route 1, Box 302
- Robert L. Hill (1961), Ph.D. (Kansas)
Professor of Biochemistry 2510 Perkins Avenue
- Frederick R. Hine (1958), M.D. (Yale)
Professor of Psychiotry 2317 Prince Street
- ⁸⁹Charles Hirschman (1972), Ph.D. (Wisconsin)
Assistant Professor of Sociology 611 West Markham Avenue
- Richard D. Hobbett (1968), J.D. (Iowa)
Professor of Low 2703 Augusta Drive
- Marcus Edwin Hobbs (1935), Ph.D. (Duke)
Professor of Chemistry 115 Pinecrest Road
- ⁹⁰Richard Earl Hodel (1965), Ph.D. (Duke)
Associate Professor of Mothematics 2729 Circle Drive
- Luther C. Hollandsworth (1970), M.D. (Bowman Gray)
Assistant Professor of Anesthesiology Route 6, Sherwood Forest
Chapel Hill, N. C.
- Irving Brinton Holley, Jr. (1947), Ph.D. (Yale)
Professor of History 2506 Wrightwood Avenue
- Frederic B. M. Hollyday (1956), Ph.D. (Duke)
Professor of History 1824 Forest Road
- Edward W. Holmes, Jr. (1973), M.D. (Pennsylvania)
Associate in Medicine 7 Ashley Road
- Everett Harold Hopkins (1961), A.M. (Pennsylvania), LL.D.
Professor of Educotion 1520 Pinecrest Road
- Grace C. Horton (1969), B.S. (Albright)
Assistant Professor of Physicol Therapy 8 Greenfield Court
- Theresa Elizabeth Horton (1964), M.S.N.E. (Pittsburgh)
Associate Professor of Nursing Apartment 3
810 Clarendon Street
- Jerry F. Hough (1973), Ph.D. (Harvard)
Professor of Political Science and Policy Sciences 1506 Ephesus Church Road
Chapel Hill, N. C.
- James S. House (1970), Ph.D. (Michigan)
Assistant Professor of Sociology 1608 Delaware Avenue
- Shyuan Hsia (1973), Ph.D. (Washington)
Assaciate in Immunology 2724 Middleton Street
- Andrew T. Huang (1971), M.D. (Med. Coll of National Taiwan Univ.) 319 Wesley Drive
Assistant Professor of Medicine Chapel Hill, N. C.
- William R. Hudson (1961), M.D. (Bowman Gray)
Professor of Otoloryngology 504 Compton Place

⁸⁷Through 8-31-73.

⁸⁸Leave of absence through 8-31-74.

⁸⁹Leave of absence 1-1-74 through 8-31-75.

⁹⁰Sabbatical leave, fall, 1973-74

- ⁹¹Robert Edward Huffman (1971), M.D. (Tennessee)
Associate in Psychiatry
Highland Hospital
Asheville, N. C.
- Alexander Hull (1962), Ph.D. (Washington)
Associate Professor of Romance Languages
2318 Prince Street
- Patricia Ann Humphrey (1972), M.P.H. (North Carolina at Chapel Hill)
Instructor in Nursing
Apartment C-A
2303 Lednum Street
- Allan S. Hurlburt (1956), Ph.D. (Cornell)
Professor of Education
112 Buchanan Boulevard
- Mary Martin Huse (1959), Ph.D. (Duke)
Assistant Professor of Medical Psychology in
Department of Psychiatry and Lecturer in Psychology
Route 7, Box 270
Ephesus Church Road
- ⁹²Albert M. J. Hyatt (1972), Ph.D. (Duke)
Visiting Associate Professor of History
302 Woodridge Drive
- William L. Hylander (1971), Ph.D. (Chicago)
Assistant Professor of Anatomy and Assistant Professor
of Anthropology
402 Bon Air
- O. Kelly Ingram (1959), B.D. (Duke)
Professor of Parish Ministry
2728 Sevier Street
- Donald C. Jackson (1973), M.B. Ch.B. (Sheffield, England)
Associate Professor of Radiology
Route 8, Box 398
Infinity Road
- Gitta Wiessner Jackson (1973), M.D. (Duke)
Associate in Psychiatry
700 Biltmore Avenue, Apt. 313
Asheville, N. C.
- Jacquelyne J. Jackson (1968), Ph.D. (Ohio)
Associate Professor of Medical Sociology in the
Department of Psychiatry
2910 Kanewood Drive
- Wallace Jackson (1965), Ph.D. (Pennsylvania)
Associate Professor of English
1310 Kent Street
- ⁹³Miriam J. Jacobs (1968), Ph.D. (Alabama)
Professor of Physical Therapy and Assistant Professor
of Anatomy
Apartment D-14
1829 Front Street
- Boi Jon Jaeger (1972), Ph.D. (Duke)
Associate Professor of Health Administration
923 West Markham Avenue
- ⁹⁴M. M. Jarmakani (1969), M.D. (Damascus)
Assistant Professor of Pediatrics and Associate in
Radiology
2932 Welcome Drive
- John A. Jarrell, Jr. (1972), M.D. (Johns Hopkins)
Assistant Professor of Anesthesiology
2924 Buckingham Road
- Hugo Osvaldo Jauregui (1970), Ph.D. (Duke)
Assistant Professor of Pathology
5242 Summit Ridge
- Peter Walter Jeffs (1964), Ph.D. (Natal)
Professor of Chemistry
3209 Cromwell Road
- Marianna Duncan Jenkins (1948), Ph.D. (Bryn Mawr)
Professor of Art
Apartment 12
2132 Bedford Street
- Bronislas de Leval Jezierski (1958), Ph.D. (Harvard)
Associate Professor of Slavic Languages and Literatures
1611 Duke University Road
- John P. Jiminez (1965), M.D. (Med. Coll. of Virginia)
Associate Professor of Radiology
1604 Woodburn Road
- Frans F. Jobsis (1964), Ph.D. (Michigan)
Professor of Physiology
1542 Hermitage Court
- Carl G. Jockusch, Jr. (1973), Ph.D. (Massachusetts Inst. of Tech.)
Visiting Associate Professor of Mathematics
Apartment 19-B
27-48 Middleton Street
- Frederick Charles Joerg (1947), M.B.A. (Harvard)
Professor of Management Sciences and Professor
of Forest Management
2424 Wrightwood Avenue
- ⁹⁵Sheridan Waite Johns, III (1970), Ph.D. (Harvard)
Associate Professor of Political Science
3219 Waterbury
- Charles B. Johnson (1956), Ed.D. (Duke)
Associate Professor of Education
2714 McDawell Street

⁹¹Through 2-1-73.

⁹²Through 6-30-73.

⁹³Through 5-15-73.

⁹⁴Through 6-30-73.

⁹⁵Leave of absence, spring, 1973-74

Charles Johnson (1970), M.D. (Howard) Assistant Professor of Medicine	1026 Jerome Road
Dale T. Johnson (1967), Ph.D. (Vanderbilt) Associate Professor of Medical Psychology	29 Southwicke Drive Arden, N. C.
Edward Anthony Johnson (1963), M.D. (Sheffield) Professor of Physiology and Pharmacology	500 Umstead Drive, Apt. 302-C Chapel Hill, N. C.
Kurt E. Johnson (1971), Ph.D. (Yale) Assistant Professor of Anatomy	408 North Hyde Park Avenue
Michael L. Johnson (1973), M.D. (Colorado) Associate in Radiology	4003 Hillgrand Drive
Terry Walter Johnson, Jr. (1954), Ph.D. (Michigan) Professor of Botany	2408 Prince Street
Irwin Johnsrude (1966), M.D. (Manitoba) Associate Professor of Radiology	2702 Spencer Street
William Webb Johnston (1963), M.D. (Duke) Professor of Pathology	1608 University Drive
William T. Joines (1966), Ph.D. (Duke) Associate Professor of Electrical Engineering	4010 Deepwood Circle
Wolfgang Karl Joklik (1968), Ph.D. (Oxford) James B. Duke Professor of Microbiology and Immunology	3613 Hathaway Road
Barney L. Jones (1956), Ph.D. (Duke) Professor of Religion	2622 Pickett Road
Buford Jones (1962), Ph.D. (Harvard) Associate Professor of English	4116 Neal Road
Edward Ellsworth Jones (1953), Ph.D. (Harvard) Professor of Psychology	2738 Sevier Street
James David Janes (1963), M.D. (Duke) Associate Professor of Psychiatry and Assistant Professor of Pediatrics	3851 Somerset Drive
Rayford Scott Jones (1971), M.D. (Texas) Associate Professor of Surgery	3909 Regent Road
James Kalat (1971), Ph.D. (Pennsylvania) Assistant Professor of Psychology	1404 Vickers Avenue
⁹⁰ William Arthur Kale (1952), D.D. (Duke) Professor of Christian Education	500 East Markham Avenue
Henry Kamin (1948), Ph.D. (Duke) Professor of Biochemistry	2417 Perkins Road
Henry J. Katz (1967), M.A.T. (Duke) Instructor in Mathematics	1118 Woodburn Road
Samuel Lawrence Katz (1968), M.D. (Harvard) Wilbert C. Davison Professor of Pediatrics	Route 2, Piney Mountain Road Chapel Hill, N. C.
William G. Katzenmeyer (1967), Ed.D. (Duke) Associate Professor of Education	2818 McDowell Street
Bernard Kaufman (1968), Ph.D. (Indiana) Associate Professor of Biochemistry	2900 Arnold Road Apartment F
Jane S. Kaufman (1973), M.S. (Ohio State) Instructor in Nursing	3090 Colony Road
Igor I. Kavass (1972), LL.B. (Melbourne) Professor of Law	2645 Umstead Road
Richard F. Kay (1973), Ph.D. (Yale) Assistant Professor of Anatomy	Route 1, Box 10 Chapel Hill, N. C.
Charles Rush Keith (1963), M.D. (Kansas) Associate Professor of Psychiatry	Route 4, Box 407 Chapel Hill, N. C.
Thomas F. Keller (1959), Ph.D. (Michigan) Professor of Business Administration	1024 West Markham Avenue
Allen Charles Kelley (1972), Ph.D. (Stanford) Professor of Economics	4607 Chicopee Trail
William Nimmons Kelley (1968), M.D. (Emory) Associate Professor of Medicine and Assistant Professor of Biochemistry	3500 Donnegale
Patrick Dan Kenan (1965), M.D. (Duke) Associate Professor of Otolaryngology and Associate Professor of Community Health Sciences	804 Anderson Street

⁹⁰Retired 8-31-73.

- Van Leslie Kenyon, Jr. (1945), M.M.E. (Delaware) Route 2
 Professor of Mechanical Engineering Hillsborough, N. C.
- Grace Partridge Kerby (1947), M.D. (Duke) 1108 Wells Street
 Professor of Medicine
- Alan C. Kerckhoff (1958), Ph.D. (Wisconsin) 1511 Pinecrest Road
 Professor of Sociology
- Robert B. Kerr (1965), Ph.D. (Johns Hopkins) 2220 Elmwood Avenue
 Professor of Electrical Engineering
- Marlyne Kilbey (1973), Ph.D. (Houston) 311 South LaSalle Street
 Assistant Professor of Medical Psychology in the
 Department of Psychiatry
- ⁹⁷Kaye H. Kilburn (1962), M.D. (Utah) 3935 Hamstead Court
 Professor of Medicine and Assistant Professor of Anatomy
- Paul Gustan Killenberg (1972), M.D. (Pennsylvania) 2914 Friendship Drive
 Assistant Professor of Medicine
- Sung-Hou Kim (1970), Ph.D. (Pittsburgh) 604 Starmount Drive
 Assistant Professor of Biochemistry
- Burton B. King (1967), M.A. (Northwestern) 5101 Peppercorn Street
 Associate in Audiology in the Division of
 Otolaryngology in the Department of Surgery
- Thomas DeArman Kinney (1960), M.D. (Duke) 3120 Devon Road
 R. J. Reynolds Tobacco Company Professor of
 Medical Education and Professor of Pathology
- Marcel Kinsbourne (1967), M.D. (Oxford) 2528 Wrightwood Avenue
 Associate Professor of Pediatrics, Associate Professor of
 Neurology, and Lecturer in Psychology
- Ralph Gary Kirk (1970), Ph.D. (Yale) 4155 Deepwood Circle
 Assistant Professor of Physiology
- Warren Kirkendale (1967), Dr.Phil. (Vienna) 2422 Tryon Road
 Associate Professor of Musicology
- Mary Kirkpatrick (1973), M. Nurs. (Washington) 1103 Harvey Street
 Assistant Professor of Nursing Raleigh, N. C.
- Norman Kirshner (1956), Ph.D. (Pennsylvania State) 2524 Wrightwood Avenue
 Professor of Biochemistry and Professor of
 Experimental Surgery
- Paul M. Kirwin (1969), Ph.D. (Texas) 10 Tennyson Place
 Associate in Medical Psychology in the Department
 of Psychiatry
- Joseph Weston Kitchen, Jr. (1962), Ph.D. (Harvard) 1600 Delaware Avenue
 Associate Professor of Mothematocs
- Joseph E. Klause (1972), M.S. (George Washington) 5851 Sandstone Drive
 Professor of Novel Science
- Fritz Klein (1973), Ph.D. (Duke) 1008 Norwood Avenue
 Associate in the Department of Anesthesiology
- Gordon K. Klintworth (1964), Ph.D. (Witwatersrand, South Africa) 2718 Spencer Street
 Professor of Pathology
- Peter H. Klopfer (1958), Ph.D. (Yale) Route 1, Box 184
 Professor of Zoology Tierreich Farm Route
- Conrad Merton Knight (1961), B.S. (Norwich) 4603 Blanchard Road
 Associate in Radiology and Associate in Community
 Health Sciences
- ⁹⁸Kenneth R. Knoerr (1961), Ph.D. (Yale) 1608 Woodburn Road
 Professor of Forest Meteorology and
 Associate Professor of Biometeorology
- Lt. Col. Frederick W. Knops, Jr. (1971), M.S. (Rensselaer Polytechnic Inst.) 7 Tarra Place
 Professor of Aerospace Studies
- Yi-Hong Kong (1967), M.D. (National Defense Medical Center, Taipei, Taiwan) 2814 DeKalb Street
 Associate Professor of Medicine
- Anne H. Koons (1973), M.D. (Temple) 3 Lucerne Lane
 Associate in Pediatrics
- J. Mailen Kootsey (1971), Ph.D. (Brown) 1610 Sycamore Street
 Assistant Professor of Physiology

⁹⁷Through 6-30-73.

⁹⁸Sabbatical leave, fall, 1973-74.

- ⁹⁹Allen Kornberg (1965), Ph.D. (Michigan)
Professor of Political Science 23 Scott Place
- Wesley Kort (1965), Ph.D. (Chicago)
Associate Professor of Religion 3514 Winding Way
- David Kraines (1970), Ph.D. (California at Berkeley)
Associate Professor of Mothematics 408 Swift Avenue
- Paul Jackson Kramer (1931), Ph.D. (Ohio State)
James B. Duke Professor of Botany 2251 Cranford Drive
- ¹⁰⁰Richard B. Kramer (1968), Ph.D. (Chicago)
Assistant Professor of Psychology 110 Buchanan Boulevard
- Richard Spencer Kramer (1972), M.D. (Duke)
Associate in Neurosurgery 1315 Hermitage
- Deborah W. Kredich (1971), M.D. (Michigan)
Associate in Pediatrics 57 Kimberly Drive
- Nicholas M. Kredich (1968), M.D. (Michigan)
Associate Professor of Medicine and Assistant Professor
of Biochemistry 57 Kimberly Drive
- Irwin Kremen (1963), Ph.D. (Harvard)
Assistant Professor of Psychology and Assistant Professor of
Medical Psychology in the Department of Psychiatry 216 Forestwood Drive
- William B. Kremer (1966), M.D. (Upstate Med. School, New York)
Associate Professor of Medicine 2802 Legion Avenue
- Juanita M. Kreps (1955), Ph.D. (Duke)
James B. Duke Professor of Economics 1407 West Pettigrew Street
- Jonathan H. Kress (1972), B.A. (Harvard)
Instructor in Anthropology 265 Psychology-Sociology
- William R. Krigbaum (1952), Ph.D. (Illinois), D.Sc.
James B. Duke Professor of Chemistry 2504 Wilson Street
- Arthur F. Kriner (1973), M.D. (Hahnemann)
Associate in Radiology 4114 Deepwood Circle
- ¹⁰¹Robert C. Krueger (1961), D.Phil. (Oxford)
Associate Professor of English Route 2, Box 484
- Ronald P. Krueger (1969), M.D. (Duke)
Assistant Professor of Pediatrics Apartment 3
2029 Bedford Street
- Arnold D. Krugman (1964), Ph.D. (Kentucky)
Associate Professor of Medical Psychology in the
Department of Psychiatry and Lecturer in Psychology 2605 Tanglewood Drive
- ¹⁰²Magnus Jan Krynski (1969), Ph.D. (Columbia)
Associate Professor of Slavic Languages and Literature 1004 West Markham Avenue
- Arthur J. Kuhn (1971), Ph.D. (California at Berkeley)
Assistant Professor of Business Administration 1317 Norton Street
- ¹⁰³W. W. Kulski (1963), LL.D. (Paris)
James B. Duke Professor of Russian Affairs in the
Department of Political Science 1624 Marion Avenue
- LuVern H. Kunze (1973), Ph.D. (Iowa)
Professor of Hearing and Speech Pathology, Department
of Surgery Apartment 21-B
2748 Middleton Street
- J. Peter Kusel (1973), Ph.D. (St. Louis Univ.)
Assistant Professor of Radiology 3519 Winding Way
- Kathleen M. Kusel (1973), M. Nurs. (Washington Univ.)
Instructor in Nursing 3519 Winding Way
- Johannes A. Kylstra (1965), Ph.D. (Leiden)
Professor of Medicine and Associate Professor of
Physiology 2924 Friendship Road
Route 1
Mt. Sinai Road
- ¹⁰⁴Weston LaBarre (1946), Ph.D. (Yale)
James B. Duke Professor of Anthropology
- Leon Lack (1965), Ph.D. (Columbia)
Professor of Pharmacology 2936 Welcome Drive

⁹⁹Sabbatical leave 1973-74.

¹⁰⁰Through 8-31-73.

¹⁰¹Through 6-30-73.

¹⁰²Sabbatical leave, spring, 1973-74.

¹⁰³Retired 8-31-73.

¹⁰⁴Sabbatical leave, spring, 1973-74.

- ¹⁰⁵Creighton Lacy (1953), B.D., Ph.D. (Yale)
Professor of World Christianity
2714 Dogwood Road
- ¹⁰⁶Thomas Joseph Lada (1972), M.S. (Notre Dame)
Instructor in Mothemotics
3022 Chapel Hill Road
69-C Colonial Apartments
- Martin Lakin (1958), Ph.D. (Chicago)
Professor of Medical Psychology in the Department of
Psychiatry and Professor of Psychology
2709 McDowell Street
- ¹⁰⁷Celia Lamper (1971), M.S.N. (Duke)
Assistant Professor of Nursing
1816 Guess Road
Apartment 19
- Norma Landau (1972), M.A. (Toronto)
Instructor in History
1000 North Duke Street
- Richard Landeira (1970), Ph.D. (Indiana)
Assistant Professor of Romonce Languoges
3723 Sunnyside Drive
- Maurice B. Landers, III (1969), M.D. (Michigan)
Associate Professor of Ophthalmology
2965 Friendship Road
- David J. Lang (1968), M.D. (Harvard)
Associate Professor of Pediotics and Assistant
Professor of Virology
Route 2, Box 440
- David L. Lange (1971), LL.B. (Illinois)
Associate Professor of Low
12-D Towne House Apartments
Chapel Hill, N. C.
- Thomas A. Langford (1956), B.D., Ph.D. (Duke)
Professor of Systematic Theology
2002 Dartmouth Drive
- Alphonse J. Langlois (1973), Ph.D. (Duke)
Assistant Clinical Professor of Experimental Surgery
1720 Vista Street
- Charles F. Lanning (1973), M.D. (Kansas)
Assistant Professor of Anesthesiology
4713 Stafford Drive
- ¹⁰⁸Karoly Lapis (1972), M.D. (Budapest, Hungary)
Visiting Professor of Experimental Surgery
1315 Morreene Road
- Arthur Larson (1958), D.C.L. (Oxford)
Professor of Low
1 Learned Place
- John Laszlo (1960), M.D. (Harvard)
Professor of Medicine
Route 1, Box 266
Cornwallis Road
- ¹⁰⁹Elvin Remus Latty (1937), J.Sc.D. (Columbia)
William R. Perkins Professor of Low
3620 Hathaway Road
- Peter Lauf (1968), M.D. (Freiburg)
Associate Professor of Physiology and Assistant
Professor of Immunology
3535 Hamstead Court
- Dan J. Laughhunn (1968-69; 1972), D.B.A. (Illinois)
Professor of Business Administrotion and Management
Sciences
814 Churchill
Chapel Hill, N. C.
- Bruce B. Lawrence (1971), Ph.D. (Yale)
Assistant Professor of Religion
2702 Stuart Drive
- Richard H. Leach (1955), Ph.D. (Princeton)
Professor of Political Science
1313 Woodburn Road
- John LeBar (1965), Ed.D. (Duke)
Assistant Professor of Physical Educotion
923 Demerius Street
- Harold E. Lebovitz (1962), M.D. (Pittsburgh)
Professor of Medicine and Assistant Professor of Physiology
1847 Woodburn Road
- Ching-muh Lee (1972), M.D. (National Taiwan Univ.)
Assistant Professor of Anesthesiology
223 Argonne Drive
- Soong H. Lee (1972), M.D. (Seoul National Univ., Korea)
Associate in Psychiatry
#2 Lee Lane
Weldon, N. C.
- Wei-shi Chian Lee (1972), M.D. (Taipei Med. Coll.)
Associate in Anesthesiology
223 Argonne Drive
- ¹¹⁰Jack A. Lees (1971), Ph.D. (Chicago)
Assistant Professor of Mothemotics
2216 Elba Street
- Robert J. Lefkowitz (1973), M.D. (Columbia)
Associate Professor of Medicine
3539 Hamstead Court

¹⁰⁵Sabbatical leave 1973-74.

¹⁰⁶Through 8-31-73.

¹⁰⁷Leave of absence 1973-74.

¹⁰⁸Through 12-31-72.

¹⁰⁹Retired 8-31-73.

¹¹⁰Leave of absence. 1973-74.

- John C. LeMay (1961), D.V.M. (Georgia)
 Professor of Loporotory Animol Services
 Route 8, Box 347
 Goodwin Road
- Warren Lerner (1961), Ph.D. (Columbia)
 Professor of History
 2948 Friendship Road
- Richard G. Lester (1965), M.D. (Columbia)
 Professor of Radiology
 2703 Montgomery Avenue
- Betsy Levin (1973), LL.B. (Yale)
 Associate Professor of Law
 510 East Rosemary Street
 Chapel Hill, N. C.
- ¹¹¹Michael E. Levine (1972), LL.B. (Yale)
 Visiting Professor of Law
 1028 Highland Woods
 Chapel Hill, N. C.
- Alan S. Levy (1973), Ph.D. (Columbia)
 Assistant Professor of Psychology
 48-B Colonial Apartments
 Apartment 93-D
- Nelson L. Levy (1973), Ph.D. (Duke)
 Assistant Professor of Immunology
 3022 Chapel Hill Road
- Harold Walter Lewis (1946), Ph.D. (Duke)
 Professor of Physics
 1708 Woodburn Road
- Martha Modena Lewis (1933), M.A. (Columbia)
 Professor of Physical Education
 407 Erwin Apartments
- Melvyn Lieberman (1968), Ph.D. (State Univ. of New York, Downstate Med. Center)
 Associate Professor of Physiology
 1110 Woodburn Road
- ¹¹²Harold Alter Liebowitz (1972), Ph.D. (Pennsylvania)
 Visiting Assistant Professor of Religion
 1200 Leon Street
- John L. Lievsay (1962), Ph.D. (Washington)
 James B. Duke Professor of English
 2725 Montgomery Street
- L. Sigfred Linderoth (1965), M.S. (Iowa State)
 Professor of Mechanical Engineering
 2220 Whitley Drive
- ¹¹³Charles Harris Livengood, Jr. (1946), LL.B. (Harvard)
 Professor of Law
 2804 Chelsea Circle
- Daniel A. Livingstone (1956), Ph.D. (Yale)
 Professor of Zoology
 2827 Ridge Road
- Charles E. Llewellyn, Jr. (1955), M.D. (Med. Coll. of Virginia)
 Associate Professor of Psychiatry
 3550 Hamstead Court
- Jane Marie Lloyd (1961), M.A. (North Carolina)
 Assistant Professor of Physical Education
 704 Louise Circle
- Charles H. Lochmüller (1969), Ph.D. (Fordham)
 Assistant Professor of Chemistry
 3203 Mossdale Avenue
- Gregory Lockhead (1965), Ph.D. (Johns Hopkins)
 Professor of Psychology
 101 Emerald Circle
- Christian M. Lohner (1970), M.A. (George Washington)
 Visiting Assistant Professor of Aerospace Studies
 3315 Powers Lane
- ¹¹⁴E. Croft Long (1956), Ph.D. (London)
 Professor of Community Health Sciences, Associate Professor
 of Physiology and Phormocology, and Associate in Pediotics
 Route 7, Box 218
 Erwin Road
- Juanita Lee Long (1970), M.S. (North Carolina)
 Assistant Professor of Nursing
 216 Brook Lane
- William K. Longley (1968), Ph.D. (London)
 Associate Professor of Anatomy
 47 Lebanon Circle
- James Stavert Loos (1972), Ph.D. (Illinois)
 Assistant Professor of Physics
 1015 Demerius Street
- ¹¹⁵Laura R. Love (1971), Ph.D. (Texas)
 Associate in Medical Speech Pothology in the
 Department of Surgery
 2105 So-Hi Drive
- Donald W. Loveland (1973), Ph.D. (New York Univ.)
 Professor of Computer Science
 3417 Cambridge Road
- Hans Lowenbach (1940), M.D. (Hamburg)
 Professor of Psychiatry and Assistant Professor of Pediotics
 Route 3, Box 273
 Old Apex Road
- Richard Albert Lucas (1972), Ph.D. (North Carolina at Chapel Hill)
 Associate in Medical Psychology in the Department of Psychiatry
 2421 Sedgfield Drive
 Chapel Hill, N. C.

¹¹¹Through 8-31-73.

¹¹²Through 5-31-73.

¹¹³Sabbatical leave, spring, 1973-74.

¹¹⁴Through 6-30-73.

¹¹⁵Through 6-30-73.

- ¹¹⁶Ronald B. Luftig (1969), Ph.D. (Chicago)
Assistant Professor of Microbiology 5115 Old Well Street
- John G. Lundberg (1970), Ph.D. (Michigan)
Assistant Professor of Zoology 1619 Peace Street
- William S. Lynn, Jr. (1954), M.D. (Columbia)
Professor of Medicine and Associate Professor of Biochemistry 4014 Bristol Road
- George W. Lyntis (1965), Ph.D. (Wisconsin)
Associate Professor of Geology 10 Cotswold Drive
- John Nelson MacDuff (1956), M.M.E. (New York Univ.)
Professor of Mechanical Engineering 2733 Dogwood Road
- Jarlah MacKenna (1973), M.B. (National Univ. of Ireland)
Associate in the Department of Obstetrics and Gynecology Apartment 13-D
600-1 LaSalle Street
- Barry B. MacKichan (1970), Ph.D. (Stanford)
Assistant Professor of Mothematics Route 6, Box 262
Chapel Hill, N. C.
- Kenneth Scott McCarty (1959), Ph.D. (Columbia)
Professor of Biochemistry 2713 Dogwood Road
- David R. McClay (1973), Ph.D. (North Carolina at Chapel Hill)
Assistant Professor of Zoology 3704 Tremont Drive
- Carole A. McCleery (1970), Ph.D. (Carnegie-Mellon)
Assistant Professor of Business Administration Route 1, Box 316
- Thomas E. McCollough (1961), Th.D. (Southern Baptist Theological Seminary)
Associate Professor of Religion 2722 Circle Drive
- Donald E. McCollum (1962), M.D. (Bowman Gray)
Professor of Orthopaedic Surgery 2207 Wilshire Drive
- George M. McCord, Jr. (1971), M.D. (Emory)
Assistant Professor of Radiology 3211 Denise Street
- Joe M. McCord (1972), Ph.D. (Duke)
Associate in Experimental Medicine and Associate in Biochemistry 6001 LaSalle Street
- Ralph C. McCoy (1973), M.D. (Emory)
Assistant Professor of Pathology 3820 Pickett Road
Route 2, Box 20
- Alice L. McCrea (1961), M.S. (Chicago)
Assistant Professor of Radiology 2911 Umstead Road
- Thomas Edward McDonnell (1971), M.A. (Fordham)
Visiting Assistant Professor of Naval Science 4043 Kelly Drive
- James H. McElhaney (1973), Ph.D. (West Virginia)
Professor of Biomedical Engineering 3411 Cambridge
- Marjorie B. McElroy (1970), Ph.D. (Northwestern)
Assistant Professor of Economics Route 4, Box 535
Chapel Hill, N. C.
- ¹¹⁷James A. McFarland (1968), M.D. (Johns Hopkins)
Assistant Professor of Community Health Sciences and Assistant Professor of Medicine 2704 Sevier Street
- Philip A. McHale (1972), Ph.D. (Duke)
Associate in Medicine and Associate in Physiology 608 North Gregson Street
- Patrick Allen McKee (1969), M.D. (Oklahoma)
Associate Professor of Medicine and Assistant Professor of Biochemistry 2616 Augusta Drive
- John C. McKinney (1957), Ph.D. (Michigan State)
Professor of Sociology and Professor of Medical Sociology in the Department of Psychiatry Route 8, Box 286
- ¹¹⁸Mary Helen McLachlan (1958), M.A. (Missouri)
Associate Professor of Dietetics 2022 Bivins Street
- Byron D. McLees (1967-69; 1971), Ph.D. (Johns Hopkins)
Assistant Professor of Medicine 108 Pawnee Court
- Robert McLelland (1972), M.D. (Cincinnati)
Associate Professor of Radiology 3716 St. Marks Road
- Michael E. McLeod (1966), M.D. (Duke)
Associate Professor of Medicine 4007 Deepwood Circle
- Samuel M. McMahan (1968), M.D. (Ohio State)
Assistant Professor of Medicine 5343 Yardley Terrace

¹¹⁶Through 6-30-73.

¹¹⁷Through 6-30-73.

¹¹⁸Through 12-31-72.

- Thomas Joseph McManus (1961), M.D. (Boston)
Associate Professor of Physiology and Pharmacology 1408 Oakland Avenue
- James O. McNamara (1973), M.D. (Michigan)
Associate in Medicine 4115 Cobblestone
- Andrew McPhail (1968), Ph.D. (Glasgow)
Professor of Chemistry 5305 Partridge Street
- Harry Thurman McPherson (1955), M.D. (Duke)
Professor of Medicine 3915 Nottaway Road
- George L. Maddox (1960), Ph.D. (Michigan State)
Professor of Sociology and Professor of
Medical Sociology in the Department of Psychiatry 2750 McDowell Street
- Moses Stephen Mahaley (1965), Ph.D. (Duke)
Assistant Professor of Neurosurgery and Assistant Professor
of Anatomy 3940 Nottaway Road
Apartment 49
- Edward P. Mahoney (1965), Ph.D. (Columbia)
Associate Professor of Philosophy 1000 North Duke Street
- Steven Maier (1971), Ph.D. (Stanford)
Assistant Professor of Business Administration Apartment D-8
1829 Front Street
- Lazaro J. Mandel (1972), Ph.D. (Pennsylvania)
Assistant Professor of Physiology 405 Whitehead Circle
Chapel Hill, N. C.
- Charles Edward Mann (1970), M.S. (Duke)
Visiting Assistant Professor of Natural Science 3503 Winding Way
- Charles Milton Mansbach (1970), M.D. (New York Univ.)
Assistant Professor of Medicine 2431 Tryon Road
- Peter N. Marinos (1968), Ph.D. (North Carolina State)
Professor of Electrical Engineering 9-C Anderson Street Apartments
- Sidney David Markman (1947), Ph.D. (Columbia)
Professor of Art History and Archaeology 919 Urban Avenue
- Patricia H. Marschall (1971), LL.M. (Harvard)
Professor of Law 1622 University Place
- Gail R. Marsh (1969), Ph.D. (Iowa)
Assistant Professor of Medical Psychology in the
Department of Psychiatry 1506 Southwood Place
- David V. Martin (1962), Ed.D. (Duke)
Associate Professor of Education 1527 Hermitage Court
- ¹¹⁹Salutario J. R. Martinez (1971), M.D. (Univ. of Havana)
Assistant Professor of Radiology 1111 Little Creek Street
- ¹²⁰William M. Mason (1970), Ph.D. (Chicago)
Assistant Professor of Sociology 1601 Hermitage Court
- Raymond Massengill, Jr. (1964), Ed.D. (Virginia)
Associate Professor of Medical Speech Pathology,
Division of Plastic and Maxillofacial Surgery 2734 Spencer Street
- Jane S. Matthews (1971), M.P.H. (North Carolina)
Assistant Professor of Physical Therapy and Assistant
Professor of Community Health Sciences 300 Rutledge Avenue
- ¹²¹Seymour Masketopf (1964), Ph.D. (Princeton)
Associate Professor of History 1900 Glendale Avenue
Rural Route 2, Box 27
Hillsborough, N. C.
- David W. Maves (1972), A.Mus.D. (Michigan)
Visiting Assistant Professor of Music Apartment 3
1923 Bedford Street
- ¹²²Demmie G. Mayfield (1964), M.D. (Texas)
Associate Professor of Psychiatry
- Otto Meier, Jr. (1934), Ph.D. (Pennsylvania)
Professor of Electrical Engineering 113 Pinecrest Road
- Frederick J. Meine (1973), M.D. (Temple)
Assistant Professor of Radiology and Assistant Professor
of Pediatrics 3837 Somerset Drive
- Elgin W. Mellown (1965), Ph.D. (London)
Associate Professor of English 1004 Minerva Avenue
- Lorne Mendell (1968), Ph.D. (Massachusetts Inst. of Tech.)
Associate Professor of Physiology 1812 Rolling Road, Apt. 16-F
Chapel Hill, N. C.

¹¹⁹Through 6-30-73.

¹²⁰Through 8-31-73.

¹²¹Leave of absence, spring, 1973-74.

¹²²Through 7-1-73.

- Daniel B. Menzel (1971), Ph.D. (California)
Associate Professor of Pharmacology and Associate
Professor of Experimental Medicine 932 Clarion Drive
Box 743
Sally C. Messrick (1973), M.S. (North Carolina at Chapel Hill)
Instructor in Nursing Pittsboro, N. C.
- Richard S. Metzgar (1962), Ph.D. (Buffalo)
Professor of Immunology 3616 Westover Road
- ¹²³Horst Meyer (1959), Ph.D. (Zurich)
Professor of Physics 2716 Montgomery Street
- Eric M. Meyers (1969), Ph.D. (Harvard)
Associate Professor of Religion 3202 Waterbury Drive
- M. Victor Michalak (1950), Ph.D. (Indiana)
Associate Professor of English 804 Louise Circle
- Don D. Mickey (1973), Ph.D. (Louisiana State)
Associate in Experimental Surgery 3318 Dixon Road
- Paul A. Mickey (1970), Th.D. (Princeton)
Assistant Professor of Postoral Theology 1100 Woodburn Road
Route 2, Box 482
Donald S. Miller (1969), M.D. (Harvard)
Assistant Professor of Medicine Hillsborough, N. C.
Bartram Drive
Chapel Hill, N. C.
- Gustavus H. Miller (1955), Ph.D. (Michigan)
Assistant Professor of Romance Languages Chapel Hill, N. C.
- Martin A. Miller (1970), Ph.D. (Chicago)
Assistant Professor of History 2808 Shannon Road
Route 3, Box 212A
Sarah Elizabeth Miller (1973), Ph.D. (Georgia)
Associate in Microbiology Apex, N. C.
- Elliott Mills (1968), Ph.D. (Columbia)
Associate Professor of Physiology 800 Hartig Street
Chapel Hill, N. C.
- Wilma A. Minniear (1964), M.S.N. (Western Reserve)
Professor of Nursing and Associate Professor of Health
Administration 5203 Shady Bluff Street
- William Thomas Earle Mishler, II (1972), Ph.D. (Duke)
Assistant Professor of Political Science 3732 Sunnyside Drive
- Jesper V. Moller (1973), D.Sc. (Aarhus Univ.)
Visiting Assistant Professor of Biochemistry 862 Louise Circle
- ¹²⁴Gerald C. Monsman (1965), Ph.D. (Johns Hopkins)
Associate Professor of English 1421 North Mangum Street
Apartment 22-G
Kathryn A. Montgomery (1972), M.S. (Minnesota)
Assistant Professor of Nursing 2836 Chapel Hill Road
- ¹²⁵Byron T. Mook (1971), B.A. (Oberlin)
Instructor in Political Science 802 Green Street
- John W. Moore (1961), Ph.D. (Virginia)
Professor of Physiology 605 Kenmore Road
Chapel Hill, N. C.
- ¹²⁶Lawrence C. Moore, Jr. (1966), Ph.D. (California Inst. of Tech.)
Associate Professor of Mathematics 2104 Sprunt Street
- James J. Morris (1963), M.D. (State Univ. of New York)
Associate Professor of Medicine 2903 Buckingham Road
- John D. Moses (1970), Ph.D. (Duke)
Instructor in Physics 4 Ashley Road
- Montrose J. Moses (1959), Ph.D. (Columbia)
Professor of Anatomy 152 Pinecrest Road
- Ada F. Most (1973), Ed.D. (Columbia)
Associate Professor of Nursing 3106 Ithica Street
- Earl George Mueller (1945), Ph.D. (Iowa)
Professor of Art 1516 Kent Street
- Julia Wilkinson Mueller (1939-41; 1946), M.A. (Iowa)
Professor of Music 1516 Kent Street
- ¹²⁷Bruce Muga (1967), Ph.D. (Illinois)
Associate Professor of Civil Engineering 4110 King Charles Road

¹²³Sabbatical leave, spring, 1973-74.

¹²⁴Sabbatical leave, spring, 1973-74.

¹²⁵Leave of absence, spring, 1973-74.

¹²⁶Sabbatical leave 1973-74.

¹²⁷Leave of absence 1973-74.

- Bruce R. Munson (1970), Ph.D. (Minnesota)
Assistant Professor of Mechanical Engineering 2128 Englewood Avenue
 128Roland Murphy (1967-68; 1971), S.T.D. (Catholic Univ.) 211 McCauley Street
Professor of Old Testament Chapel Hill, N. C.
- Francis J. Murray (1960), Ph.D. (Columbia) 1012 Norwood Avenue
Professor of Mathematics Apartment 9-B
 129James C. Murray (1967), Ph.D. (Cornell) 1600 Anderson Street
Assistant Professor of Romance Languages
- William J. Murray (1972), Ph.D. (Wisconsin) 135 Pinecrest Road
Associate Professor of Anesthesiology
- Gerard Musante (1971), Ph.D. (Tennessee) 120 Continental Drive
Assistant Professor of Medical Psychology in the Department of Psychiatry and Associate in Community Health Sciences Apartment D-17
 130Gene Ebert Myers (1972), M.D. (Pennsylvania) 1829 Front Street
Associate in Medicine
- George C. Myers (1968), Ph.D. (Washington) 12 Scott Place
Professor of Sociology
- Lawrence E. Myers (1973), Ph.D. (California at Berkeley) 2211 Englewood Avenue
Assistant Professor of Mathematics
- Hiroshi Nagaya (1966), M.D. (Toyko) 2910 Friendship Road
Associate Clinical Professor of Medicine
- Toshio Narahashi (1962-63; 1965), Ph.D. (Tokyo) 2964 Friendship Road
Professor of Physiology
- James L. Nash (1972), M.D. (Duke) 2815 Welcome Drive
Assistant Professor of Psychiatry
- Blaine S. Nashold, Jr. (1957), M.D. (McGill) 410 East Forest Hills Boulevard
Associate Professor of Surgery in Division of Neurosurgery
- 131Sydney H. Nathans (1966), Ph.D. (Johns Hopkins) 1627 Marion Avenue
Associate Professor of History
- Dorothy E. Naumann (1963), M.D. (Syracuse) 2404 Tampa Avenue
Associate in Community Health Sciences
- Aubrey Willard Naylor (1952), Ph.D. (Chicago) 2430 Wrightwood Avenue
James B. Duke Professor of Botany
- Thomas Herbert Naylor (1964), Ph.D. (Tulane) Murphy School Road
Professor of Economics and Computer Science Hillsborough, N.C.
- Robert David Nebes (1973), Ph.D. (California Inst. of Tech.) Apartment D-2
Assistant Professor of Medical Psychology in the Department of Psychiatry 3600 Tremont Drive
- Francis A. Neelon (1969), M.D. (Harvard) 2216 West Club Boulevard
Assistant Professor of Medicine
- M. Dean Nefzger (1973), Ph.D. (Iowa) 2723 Stuart Drive
Professor of Community Health Sciences
- Glenn Robert Negley (1946), Ph.D. (Chicago) Apartment 8
Professor of Philosophy 2330 Hilton Avenue
- Sigrid Neilius (1973), M.D. (Munich) 3112 Sprunt Avenue
Associate in Community Health Sciences
- Charles W. Neville, Jr. (1964), M.D. (Vanderbilt) 56 Woodbury Road
Associate Professor of Psychiatry Asheville, N. C.
- Barbara Carol Newborg (1952), M.D. (Johns Hopkins) 1503 Virginia Avenue
Assistant Professor of Medicine
- Henry Winston Newson (1948), Ph.D. (Chicago) 1111 North Gregson Street
James B. Duke Professor of Physics
- Francis Newton (1967), Ph.D. (North Carolina) 2809 Legion Avenue
Professor of Latin Route 3
 Hillsborough, N. C.
- Khye Weng Ng (1970), M.B.B.S. (Malaya) 1307 Arnette Avenue
Assistant Professor of Medicine
- Jack L. Nichols (1970), Ph.D. (Alberta)
Assistant Professor of Microbiology

¹²⁸Sabbatical leave 1973-74.

¹²⁹Through 8-31-73.

¹³⁰Through 6-30-73.

¹³¹Sabbatical leave, spring, 1973-74.

- William McNeal Nicholson (1935), M.D. (Johns Hopkins)
 Professor of Medicine 824 Anderson Street
- R. Bruce Nicklas (1965), Ph.D. (Columbia)
 Professor of Zoology 3101 Camelot Court
- Robert J. Niess (1972), Ph.D. (Minnesota)
 Professor of Romance Languages 2709 Spencer Street
- Charles E. V. Nixon (1971), Ph.D. (Michigan)
 Assistant Professor of Classical Studies 913 Urban Street
- Loren W. Nolte (1966), Ph.D. (Michigan)
 Professor of Electrical Engineering and Professor of
 Biomedical Engineering 2708 Sevier Street
- Charles Bryan Norton (1971), M.D. (Duke)
 Assistant Professor of Psychiatry 4637 Pinedale Drive
- Thomas T. Norton (1972), Ph.D. (California at Los Angeles)
 Assistant Professor of Psychology and Physiology 2708 Augusta Drive
- ¹³²A. Sue Norville (1966), M.S.N. (Emory)
 Associate Professor of Nursing Apartment 28-D
 705 Louise Circle
- David W. Novak (1970), Ph.D. (Kentucky)
 Assistant Professor of Medical Psychology in the Department
 of Psychiatry 5126 Kenwood Road
- Richey A. Novak (1969), Ph.D. (Johns Hopkins)
 Associate Professor of Germanic Languages and Literature 3927 Swathmore Road
- John B. Nowlin (1967), M.D. (Duke)
 Assistant Professor in Community Health Sciences Apartment 1
 2711 Bedford Street
- Yasuhiko Nozaki (1966), Ph.D. (Tokyo)
 Associate in Biochemistry 2810 Stuart Drive
- Holger Olof Nygard (1960), Ph.D. (California at Berkeley)
 Professor of English 4015 Cole Mill Road
- Charles George Oakes (1972), Ph.D. (Emory)
 Assistant Professor of Community Health Sciences 326 Azalea Drive
 Chapel Hill, N. C.
- ¹³³John F. Oates (1967), Ph.D. (Yale)
 Professor of Classical Studies 2416 Alpine Road
- William M. O'Barr (1969), Ph.D. (Northwestern)
 Assistant Professor of Anthropology 1700 Shawnee Street
- ¹³⁴Maryjoan O'Brien (1972), M.S.N. (Duke)
 Instructor in Nursing Apartment D-234
 2526 Erwin Road
- Walter D. Obrist (1957), Ph.D. (Northwestern)
 Professor of Medical Psychology in the Department of
 Psychiatry and Lecturer in Psychology 2604 McDowell Street
- Guy Leary Odom (1943), M.D. (Tulane)
 Professor of Neurosurgery 2812 Chelsea Circle
- William M. O'Fallon (1965), Ph.D. (North Carolina)
 Associate Professor of Community Health Sciences Glen Heights
 and Assistant Professor of Mathematics Chapel Hill, N. C.
- Fearghus T. O'Foghludha (1970), Ph.D. (National Univ. of Ireland)
 Professor of Radiology 1513 Pinecrest Road
- H. Newland Oldham, Jr. (1970), M.D. (Baylor)
 Associate Professor of Surgery 1300 Oakland
- Henry Olela (1972), Ph.D. (Florida State)
 Assistant Professor of Block Studies Apartment M-10
 700 Morreene Road
- ¹³⁵John Robert Olson, Jr. (1972), M.D. (Indiana)
 Associate in Radiology 1305 Rosemary Avenue
- F. Hodge O'Neal (1959), S.J.D. (Harvard)
 James B. Duke Professor of Law Apartment E-3
 700 Morreene Road
- Edward Stewart Orgain (1934), M.D. (Virginia)
 Professor of Medicine 3321 Devon Road
- James R. O'Rourke, Jr. (1972), M.D. (Kentucky)
 Associate in Community Health Sciences and
 Clinical Associate in Medicine 405 Longleaf Drive
 Chapel Hill, N. C.

¹³²Sabbatical leave, spring, 1973-74.

¹³³Sabbatical leave 1973-74.

¹³⁴Through 8-31-73.

¹³⁵Through 6-30-73.

- Robert Tappan Osborn (1954), Ph.D. (Drew)
Professor of Religion 2732 McDowell Street
Apartment 15
- Raymond L. Osborne, Jr. (1973), M.D. (McGill)
Associate in Radiology 2117 Bedford Street
- Shirley K. Osterhout (1967), M.D. (Duke)
Associate in Pediatrics 600 Starmount Drive
- Suydam Osterhout (1959), Ph.D (Rockefeller Inst.), M.D. (Duke)
Professor of Microbiology and Associate Professor
of Medicine 600 Starmount Drive
- Athos Ottolenghi (1959), M.D. (Pavia, Italy)
Associate Professor of Phormocology 1510 Woodburn Street
- Harry Ashton Owen, Jr. (1951), Ph.D. (North Carolina State)
Professor of Electrical Engineering 2714 McDowell Street
- ¹³⁶George Padilla (1965), Ph.D. (California)
Associate Professor of Physiology 2027 Bivins Street
- David L. Paletz (1967), Ph.D. (California at Los Angeles)
Associate Professor of Political Science 1311 Carolina Avenue
- Aubrey Edwin Palmer (1944), B.S., C.E. (Virginia)
Associate Professor of Civil Engineering 2525 Highland Avenue
- ¹³⁷Richard A. Palmer (1966), Ph.D. (Illinois)
Associate Professor of Chemistry 126 Pinecrest Road
- ¹³⁸Erdman B. Palmore (1967), Ph.D. (Columbia)
Professor of Medical Sociology in the Department of
Psychiatry and Professor of Sociology 19 Scott Place
Apartment 22-A
- William E. Parham (1972), Ph.D. (Illinois)
R. J. Reynolds Tobacco Company Professor of Chemistry 200 Seven Oaks Road
- Harold Talbot Parker (1939), Ph.D. (Chicago)
Professor of History 1005 Demerius Street
- Joseph B. Parker, Jr. (1970), M.D. (Tennessee)
Professor of Psychiatry 24 Stoneridge Circle
- Roy T. Parker (1954), M.D. (Med. Coll. of Virginia)
F. Boyord Corter Professor of Obstetrics and Gynecology 111 Pinecrest Road
- Harry B. Partin (1964), Ph.D. (Chicago)
Associate Professor of Religion 2739 Spencer Street
- Joel Francis Paschal (1954), Ph.D. (Princeton)
Professor of Law 1527 Pinecrest Road
- Merrill Lee Patrick (1964), Ph.D. (Carnegie Inst. of Tech.)
Associate Professor of Computer Science 25 Scott Place
- F. M. S. Patterson (1968), M.D. (Pennsylvania)
Assistant Professor of Surgery and Assistant Clinical
Professor of Community Health Sciences 410 Clayton Road
Chapel Hill, N. C.
- Z. Daniel Pauk (1967), M.D. (Iowa)
Assistant Professor of Psychiatry 1802 Woodburn Road
- Robert G. Paul (1970), Ph.D. (Oklahoma)
Associate in Audiology and Speech Pathology in the
Department of Surgery 3403 Rolling Hill Road
- David F. Paulson (1972), M.D. (Duke)
Assistant Professor of Urology 3102 Doubleday Place
- Hilda Pavlov (1960), M.A. (Leningrad)
Assistant Professor of Slavic Languages 709 Reta Road
- Michael I. Pavlov (1960), M.A. (Leningrad)
Associate Professor of Russian 709 Reta Road
- Bruce Payne (1972), M.A. (Yale)
Instructor in Policy Sciences and Political Science 408 Polk Street
Raleigh, N. C.
- William Bernard Peach (1951), Ph.D. (Harvard)
Professor of Philosophy Route 2, Box 474
- Daniel T. Peak (1969), M.D. (Wisconsin)
Assistant Professor of Psychiatry 3307 Pinafore Drive
- George W. Pearsall (1964), Sc.D. (Massachusetts Inst. of Tech.)
Professor of Mechanical Engineering 2941 Welcome Drive

¹³⁶Sabbatical leave 7-1-72 through 3-30-73.

¹³⁷Sabbatical leave, spring, 1973-74.

¹³⁸Sabbatical leave 8-1-73 through 12-31-73.

- Talmage Lee Peele (1939), M.D. (Duke)
 Professor of Anatomy, Professor of Medicine (Neurology),
 Assistant Professor of Pediatrics, and Lecturer in Psychology KD2 University Apartments
- Charles Henry Peete, Jr. (1953), M.D. (Harvard)
 Professor of Obstetrics and Gynecology 42 Beverly Drive
- William P. J. Peete (1955), M.D. (Harvard)
 Professor of Surgery 2814 Chelsea Circle
- Peter Francis Pepe (1972), M.D. (Temple)
 Assistant Professor of Medicine 320 Glendale Drive
 Chapel Hill, N. C.
- Ronald Perkins (1969), Ph.D. (Indiana)
 Associate Professor of Geology 2719 Montgomery Street
- Edythe Mae Persing (1964), M.N. (Western Reserve)
 Assistant Professor of Nursing Route 2
 Chapel Hill, N. C.
- Walter Scott Persons (1930), A.B. (Duke)
 Associate Professor of Physical Education 612 Swift Avenue
- Ruth Lohmann Peschel (1971), M.D. (Berlin)
 Assistant Professor of Medicine 2306 Pershing Street
- Robert H. Peter (1967), M.D. (Duke)
 Associate Professor of Medicine 2710 McDowell Street
- Russell Petersen (1971), Ph.D. (Washington)
 Assistant Professor of Business Administration 1901 Cannon Street
- David W. Peterson (1973), Ph.D. (Stanford)
 Professor of Management Sciences in the Graduate School of
 Business Administration 1013 Monmouth Avenue
- Olan Lee Petty (1952), Ph.D. (Iowa)
 Professor of Education 2605 McDowell Street
- Eric A. Pfeiffer (1966), M.D. (Washington)
 Professor of Psychiatry 3203 Cromwell Road
- John Bernard Pfeiffer, Jr. (1949), M.D. (Cornell)
 Professor of Medicine 3414 Rugby Road
- Leland R. Phelps (1961), Ph.D. (Ohio State)
 Professor of German 2255 Cranford Road
- ¹⁴⁰James Henry Phillips (1946), Ph.D. (Yale)
 Professor of Religion 2517 Perkins Road
 Apartment 18-D
- Joseph F. Phillips (1973), M.D. (Emory)
 Associate in Radiology 2748 Middleton Street
- ¹⁴¹Jane Philpott (1951), Ph.D. (Iowa)
 Professor of Botany and Professor of Wood Anatomy 2260 Cranford Road
- John E. P. Pickett (1970)
 Associate in Pathology and Instructor in the
 School of Medical Technology 3323 Pinafore Drive
- Kenneth LeRoy Pickrell (1944), M.D. (Johns Hopkins)
 Professor of Plastic and Maxillofacial Surgery 3 Sylvan Road
- Orrin H. Pilkey (1965), Ph.D. (Florida State)
 Professor of Geology Route 3, Highway 70
 Hillsborough, N. C.
- Theo Clyde Pilkington (1961), Ph.D. (Duke)
 Professor of Biomedical Engineering and Professor of
 Electrical Engineering 2932 Ridge Road
- Sheldon R. Pinnell (1973), M.D. (Yale)
 Associate Professor of Medicine (Dermatology) 2815 Chelsea Circle
- Robert A. Pittillo, Jr. (1968), Ed.D. (Duke)
 Associate Professor of Education P. O. Box 6275
 College Station
- William D. Poe (1971), M.D. (Bowman Gray)
 Assistant Professor of Community Health Sciences 406 Elliott Road
 Chapel Hill, N. C.
- Jacques C. Poirier (1955), Ph.D. (Chicago)
 Professor of Chemistry 210 West Lavender Avenue
- ¹⁴²Jerko Poklepovic (1971), M.D. (Univ. of Zagreb, Yugoslavia)
 Assistant Professor of Radiology Apartment C-2
 3600 Tremont Drive
- Grace Hilford Polansky (1968), M.S. (Western Reserve)
 Assistant Professor of Psychiatric Social Work 504 Watts Street

¹⁴⁰Sabbatical leave, spring, 1973-74.

¹⁴¹Sabbatical leave, fall, 1973-74.

¹⁴²Through 6-30-73.

- ¹⁴³Louis R. Pondy (1967), Ph.D. (Carnegie Inst. of Tech.)
Associate Professor of Business Administration and Associate
Professor of Community Health Sciences 1013 Monmouth Avenue
- F. Stanley Porter (1964), M.D. (Johns Hopkins)
Professor of Pediatrics 2609 Cornwallis Road
- Ned A. Porter (1969), Ph.D. (Harvard)
Assistant Professor of Chemistry 1009 Archdale Road
- Richard M. Portwood (1959), M.D. (Southwestern)
Assistant Professor of Medicine 54 Beverly Drive
- Raymond W. Postlethwait (1955), M.D. (Duke)
Professor of Surgery 2416 Erwin Road
- William H. Poteat (1960), B.D., Ph.D. (Duke)
Professor of Religion and Comparative Studies 621 Greenwood Road
Chapel Hill, N. C.
- Leo Potts (1973), M.B. (Adelaide, South Australia)
Assistant Professor of Psychiatry 53 Panola Street
Asheville, N. C.
- Lois Ann Pounds (1969), M.D. (Pittsburgh)
Assistant Professor of Pediatrics, Assistant Professor of Community Health
Sciences, and Assistant Professor of Nursing 4029 Nottaway Road
- Benjamin E. Powell (1946), Ph.D. (Chicago)
Professor in the Faculty of Arts and Sciences 3609 Hathaway Road
- Philip C. Pratt (1966), M.D. (Johns Hopkins)
Professor of Pathology 2707 Sevier Street
- Vernon Pratt (1964), M.F.A. (San Francisco Art Inst.)
Assistant Professor of Art 1903 Glendale Avenue
Route 1, Box 379-P
Bahama, N. C.
- Richard Lionel Predmore (1950), D.M.L. (Middlebury)
Professor of Romance Languages
- Jack J. Preiss (1959), Ph.D. (Michigan State)
Professor of Sociology 2722 McDowell Street
- Richard A. Preston (1965), Ph.D. (Yale)
William K. Boyd Professor of History 1124 Woodburn Road
Route 4, Collums Road
Chapel Hill, N. C.
- David E. Price (1973), Ph.D. (Yale)
Associate Professor of Political Science and Policy Sciences Box 4813
Duke Station
- E. Reynolds Price (1958), B.Litt. (Oxford)
Professor of English
- ¹⁴⁴James Ligon Price, Jr. (1952), Ph.D. (Cambridge)
Professor of Religion 2723 Circle Drive
- ¹⁴⁵Charles Linwood Puckett (1972), M.D. (Bowman Gray)
Associate in Surgery 3007 Glendale Avenue
- A. Kenneth Pye (1966), LL.M. (Georgetown)
Professor of Law 2802 Chelsea Circle
- Steven H. Quarfordt (1968), M.D. (New York Univ.)
Associate Professor of Medicine 3300 Pinafore Drive
- Louis D. Quin (1957), Ph.D. (North Carolina)
Professor of Chemistry 2740 McDowell Street
- Galen W. Quinn (1958), D.D.S. (Tennessee)
Professor of Orthodontics 806 East Forest Hills Boulevard
- Naomi R. Quinn (1972), Ph.D. (Stanford)
Assistant Professor of Anthropology 710 Overhill Terrace
- Jill Raitt (1973), Ph.D. (Chicago)
Associate Professor of Historical Theology in the Divinity School 3213 Pickett Road
- K. V. Rajagopalan (1966), Ph.D. (Madras)
Associate Professor of Biochemistry 2214 Elmwood Avenue
- Charles W. Ralston (1954), Ph.D. (Duke)
Professor of Forest Soils 2531 Wrightwood Avenue
- ¹⁴⁶P. Rangaswamy Ramachandran (1972), M.B. (Government Med. Coll.,
Mysore, India) Apartment 5-J
Assistant Professor of Anesthesiology 200 Seven Oaks Road
- Dietolf Ramm (1969), Ph.D. (Duke)
Assistant Professor of Computer Science and
Assistant Professor of Information Sciences in Psychiatry 1609 Sycamore Street

¹⁴³Through 8-31-73.

¹⁴⁴Sabbatical leave 1973-74.

¹⁴⁵Through 3-31-73.

¹⁴⁶Through 1-1-73.

- John F. Rampone (1973), M.D. (Marquette)
 Assistant Professor of Obstetrics and Gynecology 907 Chalice Street
- Dale B. J. Randall (1957), Ph.D. (Pennsylvania)
 Professor of English 2620 University Drive
- ¹⁴⁷M. S. A. Rao (1973), Ph.D. (Bombay, India)
 Visiting Professor in South Asian Studies in the
 Department of History 33-D Duke Manor Apartments
- Norman B. Ratliff (1968), M.D. (Duke)
 Associate Professor of Pathology 2718 McDowell Street
- Calla Ann Raynor (1962), M.A.T. (North Carolina)
 Assistant Professor of Physical Education 858 Louise Circle
- Frank Thompson Read (1968), LL.B. (Duke)
 Professor of Law 5223 Partridge Street
- Kenneth James Reardon (1947), M.A. (Boston)
 Associate Professor of English 2511 Winton Road
- ¹⁴⁸John B. Reckless (1963), M.D. (Birmingham)
 Professor of Psychiatry and Associate Professor in the
 School of Nursing 2437 Tryon Road
- ¹⁴⁹Ann Jacobansky Reed (1953), M.Ed. (Pittsburgh) 1631 Pleasant Plains Road
 Professor of Nursing Matthews, N. C.
- John B. Reed (1973), M.D. (Harvard)
 Associate in Medicine 2518 Preston Avenue
- John William Reed (1970), M.D. (Bowman Gray)
 Assistant Professor of Ophthalmology 3212 Cromwell Road
- Michael K. Reedy (1969), M.D. (Washington)
 Associate Professor of Anatomy 2119 West Club Boulevard
- Eva Oldham Reese (1971), B.S. (Duke)
 Associate in Ophthalmology 901 Camden Avenue
- Emily G. Reisner (1973), Ph.D. (Case Western Reserve)
 Associate in Immunology Apartment 16-E
 2836 Chapel Hill Road
- Edmund Reiss (1967), Ph.D. (Harvard)
 Professor of English Route 3, Box 187
- Eugene M. Renkin (1963), Ph.D. (Harvard)
 Professor of Physiology 2028 Pershing Street
- A. W. Renuart (1961), M.D. (Duke)
 Associate Professor of Pediatrics 1201 Shepherd Street
- William A. Reppy, Jr. (1971), J. D. (Stanford) 604 Laurel Hill Road
 Associate Professor of Law Chapel Hill, N. C.
- Jacqueline A. Reynolds (1969), Ph.D. (Washington)
 Assistant Professor of Biochemistry and Assistant
 Professor in Anatomy 1430 North Mangum Street
- John McFarlane Rhoads (1956), M.D. (Temple)
 Professor of Psychiatry and Lecturer in
 Postoral Core in Divinity School 2404 Prince Street
- Reed P. Rice (1965), M.D. (Indiana) 800 Cedar Falls Road
 Associate Professor of Radiology Chapel Hill, N. C.
- David C. Richardson (1969), Ph.D. (Massachusetts Inst. of Tech.) 213 Medical Sciences 1
 Assistant Professor of Biochemistry
- Jane Shelby Richardson (1970), M.A.T. (Harvard) 213 Medical Sciences 1
 Associate in Anatomy
- Lawrence Richardson, Jr. (1966), Ph.D. (Yale)
 Professor of Latin in the Department of Classical Studies 1103 North Gregson Street
- McMurry S. Richey (1954), B.D., Ph.D. (Duke)
 Professor of Theology and Christian Nurture 2725 Dogwood Road
- Daniel H. Riddick (1973), Ph.D. (Duke)
 Assistant Professor of Obstetrics and Gynecology and
 Assistant Professor of Physiology 911 West Markham Avenue
- John D. Riebel (1962), M.A. (Duke) 60 Oakwood Drive
 Assistant Professor of Physical Education Chapel Hill, N. C.
- Eberhard Karl Riedel (1971), Dr. Rer. Nat. (Technische Univ., Munich, Germany)
 Assistant Professor of Physics 1008½ Gloria Avenue

¹⁴⁷Through 5-31-73.

¹⁴⁸Through 7-1-73.

¹⁴⁹Sabbatical leave 1973-74

- Kent J. Rigsby (1971), M.A. (Univ. of Toronto)
Assistant Professor of Classical Studies 1006 Minerva Avenue
- Dana Phelps Ripley (1959), Ph.D. (North Carolina)
Associate Professor of Romance Languages 1303 Dollar Avenue
- Charles S. Rivers, Jr. (1972), B.A. (Rice)
Visiting Assistant Professor of Novel Science 3122 Alabama Avenue
- N. Russell Roberson (1963), Ph.D. (Johns Hopkins)
Associate Professor of Physics 3406 Ogburn Court
Apartment 23-I
200 Seven Oaks Road
- George W. Roberts (1971), Ph.D. (Cambridge)
Associate Professor of Philosophy 200 Seven Oaks Road
- Jesse Earl Roberts, Jr. (1968), M.D. (Louisiana State)
Assistant Professor of Medicine and Assistant
Professor of Community Health Sciences 21 Stoneridge Circle
- ¹⁵⁰Richard A. Roberts (1972), Ph.D. (Michigan)
Visiting Associate Professor of Biomedical Engineering 5331 Yardley Terrace
- J. David Robertson (1966), M.D. (Harvard), Ph.D. (Massachusetts Inst. of Tech.)
Professor of Anatomy 32 Oak Drive
- Arvin E. Robinson (1971), M.D. (Med. Coll. of Virginia)
Assistant Professor of Radiology 1712 Woodburn Road
- Charles K. Robinson (1961), Ph.D. (Duke)
Associate Professor of Philosophical Theology 126 Emerald Circle
- David W. Robinson (1971), M.D. (Michigan)
Associate in Psychiatry 2802 Friendship Circle
Apartment 15
- ¹⁵¹George M. Robinson (1971), Ph.D. (Chicago)
Assistant Professor of Psychology 2009 Southwood Drive
- Hugh G. Robinson (1964), Ph.D. (Duke)
Professor of Physics 2749 McDowell Street
- Roscoe R. Robinson (1962), M.D. (Oklahoma)
Professor of Medicine 3929 Nottaway Road
- William James Kenneth Rockwell (1968), M.D. (Duke)
Assistant Professor of Psychiatry 3519 Donningale Street
- Charles R. Roe (1969), M.D. (Duke)
Assistant Professor of Psychology 1409 Colewood Drive
- Robert Rolf (1971), M.A. (Hawaii)
Instructor in History Broadmoor Apartment L-10
Garrett Road
- Theodore Ropp (1938), Ph.D. (Harvard)
Professor of History 302 East Woodridge Drive
- Robert A. Rosati (1971), M.D. (Duke)
Assistant Professor of Medicine and Associate in
Community Health Sciences 3615 Randolph Road
- ¹⁵²Carl M. Rose, Jr. (1967), Ph.D. (Chicago)
Assistant Professor of Physics 3109 Sherbon Drive
- Gerald M. Rosen (1972), Ph.D. (Clarkson Coll. of Tech.)
Assistant Professor of Pharmacology 403 Knob Court
Chapel Hill, N. C.
- Myron Rosenthal (1971), Ph.D. (Duke)
Assistant Professor of Physiology 4514 Regis Avenue
- Allen David Roses (1970), M.D. (Pennsylvania)
Assistant Professor of Medicine Route 7, Box 216
- David J. Ross (1972), M.A. (Michigan)
Assistant Professor of Philosophy Apartment 5
2401 West Club Boulevard
- Norman F. Ross (1937), D.D.S. (Temple)
Associate Professor of Dentistry 2811 Chelsea Circle
- Wendell F. Rosse (1966), M.D. (Chicago)
Professor of Medicine and Associate Professor of
Immunology Route 7, Box 223
Timberly Drive
- Susan Roth (1973), Ph.D. (Northwestern)
Assistant Professor of Psychology 2124 Sprunt Street
- Malcolm H. Rourk (1971), M.D. (Pennsylvania)
Assistant Professor of Pediatrics 808 Wells Street
- Donald Francis Roy (1950), Ph.D. (Chicago)
Professor of Sociology 604 North Gregson Street

¹⁵⁰Through 5-31-73.

¹⁵¹Leave of absence 1973-74.

¹⁵²Through 8-31-73.

- John Jesse Rudin, II (1945), Ph.D. (Northwestern)
Associate Professor of Christian Communications 1640 Marion Street
- Ralph Wayne Rundles (1945), Ph.D. (Cornell), M.D. (Duke)
Professor of Medicine 3608 Westover Road
- ¹⁵³Neal Person Rutledge (1970), LL.B. (Yale)
Professor of Law 4002 Colorado Avenue
- Clyde de Loache Ryals (1973), Ph.D. (Pennsylvania)
Professor of English 1620 University Drive
- David Coston Sabiston, Jr. (1964), M.D. (Johns Hopkins)
James B. Duke Professor of Surgery 1528 Pinecrest Road
- Anne E. Sagburg (1956), M.D. (Onslow)
Associate in Psychiatry Highland Hospital
Asheville, N. C.
- Harvey J. Sage (1964), Ph.D. (Yale)
Associate Professor of Biochemistry 2960 Welcome Drive
- ¹⁵⁴Lester M. Salamon (1973), Ph.D. (Harvard)
Assistant Professor of Political Science and Policy Sciences 3503 Mossdale Avenue
- Eva J. Salber (1971), M.D. (Univ. of Cape Town Med. School,
South Africa) 1308 Arboretum Drive
Professor of Community Health Sciences Chapel Hill, N. C.
- Herman Salinger (1955), Ph.D. (Yale)
Professor of German 3444 Rugby Road
- Jay S. Salkin (1969), Ph.D. (Northwestern)
Assistant Professor of Economics 9 Oak Dale Drive
Hillsborough, N. C.
- Herbert A. Saltzman (1958), M.D. (Philadelphia)
Professor of Medicine 2728 McDowell Street
- John Salzano (1958), Ph.D. (Iowa State)
Associate Professor of Physiology 409 Clarion Drive
- Aaron P. Sanders (1956), Ph.D. (North Carolina)
Professor of Radiology and Assistant Professor of
Physiology Route 1, Box 119-G2
Bahama, N. C.
- ¹⁵⁵Charles Richard Sanders (1937), Ph.D. (Chicago)
Professor of English 103 Pinecrest Road
- ¹⁵⁶David A. Sandridge (1972), M.D. (Med. Coll. of Virginia)
Associate in Obstetrics and Gynecology Apartment 23-A
200 Seven Oaks Road
- David Sanford (1970), Ph.D. (Cornell)
Associate Professor of Philosophy 2227 Cranford Road
- Eugenia Curtis Saville (1947), M.A. (Columbia)
Associate Professor of Music 1103 Anderson Street
- Lloyd Blackstone Saville (1946), Ph.D. (Columbia)
Professor of Economics 1103 Anderson Street
- Saul M. Schanberg (1967), Ph.D. (Yale)
Professor of Pharmacology and Assistant Professor of Neurology 1604 Pinecrest
- Katherine N. Schenk (1972), Ed.D. (Florida)
Associate Professor of Nursing 1300 Kent Street
- Harold Schiffman (1963), Ph.D. (Princeton)
Professor of Psychology 18 Heath Place
- Susan S. Schiffman (1972), Ph.D. (Duke)
Assistant Professor of Medical Psychology in the
Department of Psychiatry 18 Heath Place
- Marvin A. Schilder (1973), B.B.A. (City Coll. of New York)
Assistant Professor of Community Health Sciences 3920 Saint Marks Road
- Knut Schmidt-Nielsen (1952), Ph.D. (Copenhagen)
James B. Duke Professor of Physiology in the
Department of Zoology c/o Zoology Department
- Eugene S. Schneller (1972), B.A. (C.W. Post College)
Assistant Professor of Community Health Sciences and
Assistant Professor of Sociology Apartment 20-C
2836 Chapel Hill Road
- David W. Schomberg (1968), Ph.D. (Purdue)
Assistant Professor of Obstetrics and Gynecology and
Assistant Professor of Physiology Route 1, Box 304-A
Hillsborough, N. C.

¹⁵³Through 8-31-73.

¹⁵⁴Leave of absence, fall, 1973-74.

¹⁵⁵Retired 8-31-73.

¹⁵⁶Through 7-31-73.

- James Morse Schooler, Jr. (1970), Ph.D. (Wisconsin)
Assistant Professor of Physiology 410 Pekoe Avenue
- Charles H. Scoggin (1973), M.D. (Colorado)
Associate in Medicine 2033 Granville Circle
- Anne Firor Scott (1961), Ph.D. (Radcliffe)
Professor of History 1028 Highland Woods
Chapel Hill, N. C.
- David William Scott (1971), Ph.D. (Yale)
Assistant Professor of Immunology 3203 Winfield Drive
- William Evans Scott (1958), Ph.D. (Yale)
Professor of History 1311 Dollar Avenue
- Richard A. Scoville (1961), Ph.D. (Yale)
Associate Professor of Mathematics 2114 Sprunt Street
- Judy Harrington Seaber (1969), B.A. (Emory)
Associate in Ophthalmology Richmond Downs
Hillsborough, N. C.
- Will Camp Sealy (1946), M.D. (Emory)
Professor of Thoracic Surgery 2232 Cranford Road
- Richard B. Searles (1965), Ph.D. (California at Berkeley)
Associate Professor of Botany 1800 Woodburn Road
- Hilliard Foster Seigler (1967), M.D. (North Carolina)
Associate Professor of Surgery and Associate Professor
of Immunology 4006 King Charles Street
- James Hustead Semans (1953), M.D. (Johns Hopkins)
Professor of Urology 1415 Bivins Street
- Stuart M. Sessoms (1968), M.D. (Med. Coll. of Virginia)
Professor of Medicine and Professor of
Health Administration 3432 Dover Road
- Catherine M. Severns (1971), Certificate in Nursing (Yale)
Associate in the Department of Community Health
Sciences Apartment 12
2117 Bedford Street
- ¹⁵⁷James Lewis Shafland (1969), Ph.D. (Chicago)
Assistant Professor of Anatomy 2911 Sparger Road
- John D. Shelburne (1973), Ph.D. (Duke)
Assistant Professor of Pathology 210 Landsbury Drive
- Marion L. Shepard (1967), Ph.D. (Iowa State)
Associate Professor of Mechanical Engineering 3421 Pinafore Drive
- ¹⁵⁸Jafar Mo. Shick (1970), M.D. (Tehran, Iran)
Assistant Professor of Anesthesiology Apartment 17
25 Balmoray Court
- Melvin G. Shimm (1953), LL.B. (Yale)
Professor of Law 2429 Wrightwood Avenue
- William Warner Shingleton (1947), M.D. (Bowman Gray)
Professor of Surgery 3866 Somerset Drive
- Joseph Robert Shoenfield (1952), Ph.D. (Michigan)
Professor of Mathematics Apartment 2-G
311 LaSalle Street
- Romesh Kumar Shonek (1970), M.A. (Punjab Univ.)
Lecturer in Hindi-Urdu 5602 Greenbay Drive
- William Derek Shows (1967), Ph.D. (Duke)
Assistant Professor of Medical Psychology in the Department
of Psychiatry, Lecturer in Psychology, and Lecturer in Religion P. O. Box 2995
- R. Baird Shuman (1962), Ph.D. (Pennsylvania)
Professor of Education 3708 Lykan Parkway
- James B. Sidbury (1961), M.D. (Columbia)
Professor of Pediatrics 4044 Nottaway Road
- Lewis Siegel (1968), Ph.D. (Johns Hopkins)
Assistant Professor of Biochemistry 3006 Glendale Avenue
- Herbert O. Sieker (1955), M.D. (Washington)
Professor of Medicine 3949 Plymouth Road
- Bernard Silberman (1967), Ph.D. (Michigan)
Professor of History 21 Heath Place
- Harold R. Silberman (1962), M.D. (Washington)
Associate Professor of Medicine 2718 Princeton Drive
- Donald Silver (1964), M.D. (Duke)
Professor of Surgery and Associate Professor of Pediatrics 3826 Regent Road

¹⁵⁷Through 6-30-73.

¹⁵⁸Through 3-1-73.

- George Addison Silver, III (1946), M.D. (Duke)
Associate Professor of Psychiatry 3910 Dover Road
- Ida Harper Simpson (1959), Ph.D. (North Carolina)
Associate Professor of Sociology 604 Brookview Road
Chapel Hill, N. C.
- ¹⁵⁹William Hays Simpson (1930), Ph.D. (Duke)
Professor of Political Science 1406 Dollar Avenue
- Leroy C. Skinner (1959), M.A. (Maryland)
Associate Professor of Physical Education 416 Argonne Drive
- ¹⁶⁰Jay S. Skyler (1972), M.D. (Jefferson Med. Coll.)
Associate in Medicine and Associate in
Community Health Sciences Apartment B-15
1829 Front Street
- Theodore A. Slotkin (1971), Ph.D. (Rochester)
Assistant Professor of Pharmacology 604 Duluth
- Constance Smith (1973), M.Nurs. (Washington)
Assistant Professor of Nursing 16-C Stratford Hills Apartments
Chapel Hill, N. C.
- David Alexander Smith (1962), Ph.D. (Yale)
Associate Professor of Mathematics 2032 West Club Boulevard
- Dwight Moody Smith, Jr. (1965), Ph.D. (Yale)
Professor of New Testament Interpretation 2728 Spencer Street
- Donald S. Smith, II (1961), M.H.A. (Minnesota)
Assistant Professor of Hospital Administration 4167 Deepwood Circle
- Grover C. Smith (1952), Ph.D. (Columbia)
Professor of English 215 West Woodridge Drive
- Harmon L. Smith (1959), Ph.D. (Duke)
Professor of Moral Theology in The Divinity School 3510 Randolph Road
- James B. Smith, Jr. (1969), M.M. (Union Theological Seminary)
Lecturer in Music 2500 Glendale Avenue
- Joel Smith (1958), Ph.D. (Northwestern)
Professor of Sociology 2712 Sevier Street
- L. P. Smith (1967), M.S. (Massachusetts Inst. of Tech.)
Instructor in Mathematics 3505 Rugby Road
- Peter Smith (1959), Ph.D. (Canterbury, Cambridge)
Professor of Chemistry 2711 Circle Drive
- Ralph E. Smith (1970), Ph.D. (Colorado)
Assistant Professor of Microbiology 4146 Deepwood Circle
- ¹⁶¹Richard R. Smith (1972), M.A. (Cornell)
Instructor in Hindi-Urdu Apartment 19
2030 Bedford Street
- Thomas Allan Smith (1970), M.D. (Vanderbilt)
Associate in Psychiatry 25 Glendale Road
Asheville, N. C.
- Wade K. Smith (1972), M.D. (Johns Hopkins)
Associate in Immunology and Associate in Medicine 922 Urban Avenue
- Wirt W. Smith (1957), M.D. (Texas)
Associate Professor of Experimental Surgery 3301 Surrey Road
- Frank M. Smullin (1972), M.F.A. (Queens Coll.)
Instructor in Art 918 Green Street
- ¹⁶²Joseph T. Sneed (1971), S.J.D. (Harvard)
Professor of Law 2518 Chelsea Circle
- ¹⁶³Ralph E. Snider (1960), D.D.S. (Ohio State)
Associate in Dentistry 1511 Southwood Drive
- Ralph Snyderman (1971), M.D. (State Univ. of New York)
Assistant Professor of Medicine and Assistant Professor
of Immunology 2600 Princeton Avenue
- George C. Somjen (1963), M.D. (Amsterdam)
Professor of Physiology and Lecturer in the Department
of Psychology 6509 Hunters Lane
- ¹⁶⁴Joachim R. Sommer (1957), M.D. (Munich)
Professor of Pathology 2724 Sevier Street

¹⁵⁹Retired 8-31-73.

¹⁶⁰Leave of absence 7-1-73 through 6-30-75.

¹⁶¹Through 8-31-73.

¹⁶²Through 8-31-73.

¹⁶³Through 6-30-73.

¹⁶⁴Sabbatical leave 1-1-73 through 12-31-73.

- Madison S. Spach (1958), M.D. (Duke)
Professor of Pediatrics and Associate Professor of Physiology 2632 McDowell Street
- Dorothy Spangler (1954), M.A. (North Carolina)
Associate Professor of Physical Education 2729 Brown Avenue
- Bertel M. Sparks (1966), S.J.D. (Michigan)
Professor of Law 1707 Woodburn Road
- Alexander Spock (1962), M.D. (Maryland)
Associate Professor of Pediatrics 515 Duluth
 P. O. Box 2181
 Chapel Hill, N. C.
- George H. Spooner (1965), Ph.D. (North Carolina)
Assistant Professor of Pathology 227 Forestwood Drive
- ¹⁶⁵Thomas Spragens (1968), Ph.D. (Duke)
Assistant Professor of Political Science 227 Forestwood Drive
- ¹⁶⁶Olaf Stackelberg (1963), Ph.D. (Minnesota)
Associate Professor of Mathematics 2101 West Club Boulevard
- ¹⁶⁷John Staddon (1967), Ph.D. (Harvard)
Professor of Psychology 2719 McDowell Street
 Flint Ridge, Apartment 102
 Hillsborough, N. C.
- Nancy H. Stafford (1973), B.S. (Indiana)
Associate in Physical Therapy 3211 Sherbon Drive
- William J. Stambaugh (1961), Ph.D. (Yale)
Professor of Forest Pathology 3211 Sherbon Drive
- D. Keith Stanley, Jr. (1961), Ph.D. (Johns Hopkins)
Associate Professor of Classical Studies Box 171, Mount Sinai Road
- Charles Frank Starmer (1966), Ph.D. (North Carolina)
*Associate Professor of Computer Science and Assistant
 Professor of Medicine (Computer Science)* 1702 Glendale Avenue
- W. K. Stars (1966), M.A. (North Carolina)
Assistant Professor of Art 1916 Glendale Avenue
- Eugene Anson Stead, Jr. (1947), M.D. (Emory)
Florence McAlister Professor of Medicine 2122 Campus Drive
- David M. Steegar (1971), M.A. (Ohio State)
Instructor in Romance Languages 5401 Old Well Street
- Jeff H. Steinert (1973)
Lecturer in Health Administration 2756 McDowell Street
 Apartment 1
- Howard Mark Steinman (1972), Ph.D. (Yale)
Associate in Biochemistry 501 Dupont Circle
- David C. Steinmetz (1971), Th.D. (Harvard)
Associate Professor of Church History and Doctrine 2517 Wrightwood Avenue
- ¹⁶⁸Henry R. Stern (1968), Ph.D. (Northwestern)
Assistant Professor of German 2808 Croasdaile Road
- ¹⁶⁹Karl W. Stevenson (1971), M.D. (Bowman Gray)
Associate in Psychiatry and Associate in Pediatrics 1508 Echo Road
- Philip Robert Stewart (1972), Ph.D. (Yale)
Associate Professor of Romance Languages 522 Wofford Road
- Delford L. Stickel (1962), M.D. (Duke)
Professor of Surgery 3108 Devon Road
- Otto George Stolz (1972), J.D. (Virginia)
Associate Professor of Law Rt. 1, Box 249, St. Mary's Rd.
 Hillsborough, N. C.
- Donald E. Stone (1963), Ph.D. (California at Berkeley)
Professor of Botany 2706 Spencer Street
- Virginia Stone (1966), Ph.D. (North Carolina)
Professor of Nursing Apartment A-3
 1829 Front Street
- Woodhall Stopford (1973), M.D. (Harvard)
Associate in Community Health Sciences Box 316-A, Route 1
- Boyd R. Strain (1969), Ph.D. (California at Los Angeles)
Associate Professor of Botany 2610 Oberlin Road
- Victor H. Strandberg (1966), M.D. (Brown)
Associate Professor of English 2709 Augusta Drive
- Harold C. Strauss (1972), M.D. (McGill)
Assistant Professor of Medicine 2921 Buckingham Road

¹⁶⁵Leave of absence, spring, 1973-74.

¹⁶⁶Sabbatical leave, spring, 1973-74.

¹⁶⁷Sabbatical leave 1973-74.

¹⁶⁸Leave of absence, fall, 1973-74.

¹⁶⁹Through 6-30-73.

- Timothy Lee Strickler (1973), Ph.D. (Chicago)
Assistant Professor of Anatomy 2911 Sparger Road
- Howard A. Strobel (1948), Ph.D. (Brown)
Professor of Chemistry 1119 Woodburn Road
- Richard G. Stuelke (1972), M.D. (Iowa)
Assistant Professor of Community Health Sciences Pickens Building
- Henry L. Sublett, Jr. (1962), Ed.D. (Virginia)
Associate Professor of Education 2710 Montgomery Street
- William D. Sudduth (1970), M.S.W. (Minnesota)
Associate in Psychiatric Social Work 2512 North Duke Street
- James Bolling Sullivan (1970), Ph.D. (Texas)
Assistant Professor of Biochemistry 200 Craven Street
Beaufort, N. C.
- John L. Sullivan (1973), M.D. (Johns Hopkins)
Assistant Professor of Psychiatry Apartment L-5
901 Chalk Level Road
- ¹⁷⁰Thomas Sullivan, Jr. (1972), M.D. (Duke)
Associate in the Department of Medicine 409 Sharon Road
Chapel Hill, N. C.
- Elizabeth Read Sunderland (1939-42; 1943), Ph.D. (Radcliffe)
Professor of Art 6416 College Station
- John P. Sutherland (1969), Ph.D. (California at Berkeley)
Assistant Professor of Zoology 412 Ann Street
Beaufort, N. C.
- Robert H. Svenson (1973), M.D. (Chicago)
Associate in the Department of Medicine 1021 Chalk Level
- Louis Earl Swanson (1949), A.B. (Hamline)
Associate Professor of Hospital Administration 2418 Wrightwood Avenue
- Charles Ford Snyder (1972), M.D. (Virginia)
Associate in Ophthalmology 3222 Oxford Drive
- John Sykes (1968), Ph.D. (Birmingham)
Assistant Professor of Physics 2312 Huron Street
- Ingeborg Hildebrand Talton (1968), M.D. (Med. School, Giessen, Germany)
Assistant Professor of Anesthesiology 2406 Tampa Avenue
- Charles Tanford (1960), Ph.D. (Princeton)
James B. Duke Professor of Physical Biochemistry 1430 North Mangum Street
- ¹⁷¹John TePaske (1967), Ph.D. (Duke)
Professor of History 15 Heath Place
- Marcel Tetel (1960), Ph.D. (Wisconsin)
Professor of Romance Languages 1804 Woodburn Road
- Larry W. Thompson (1961), Ph.D. (Florida State)
Professor of Medical Psychology in the Department of
Psychiatry and Lecturer in Psychology 3408 Hope Valley Road
- Lawrence K. Thompson, III (1969), M.D. (Duke)
Assistant Professor of Plastic Surgery 3606 Wateredge Drive
- Thomas T. Thompson (1970), M.D. (Med. Coll. of Virginia)
Assistant Professor of Radiology and Assistant Professor
of Community Health Sciences 3412 Ogburn Court
- Frederick L. Thurstone (1967), Ph.D. (North Carolina State)
Professor of Electrical Engineering and Professor of
Biomedical Engineering 2532 Sevier Street
- John Philip Tindall (1966), M.D. (Duke)
Associate Professor of Dermatology 4039 King Charles Road
- Frank Tirro (1973), M.M. (Chicago)
Assistant Professor of Music 3816 Pickett Road
- Edward A. Tiryakian (1965), Ph.D. (Harvard)
Professor of Sociology 1523 Hermitage Court
- C. Craig Tisher (1969), M.D. (Washington Univ.)
Associate Professor of Medicine and Associate Professor
of Pathology 3825 Nottaway Road
- Bert R. Titus (1961), C.P.O.
Assistant Professor of Orthosis and Prosthesis 225 West Woodridge Drive
- Russell F. Tomlinson (1962), Ph.D. (Florida)
Assistant Professor of Medical Psychology in the
Department of Psychiatry 401 Holly Lane
Chapel Hill, N. C.

¹⁷⁰Through 6-30-73.

¹⁷¹Sabbatical leave, spring, 1973-74.

- Daniel C. Tosteson (1961), M.D. (Harvard)
James B. Duke Professor of Physiology
Route 5, Box 98
Chapel Hill, N. C.
- Ara Y. Tourian (1969), M.D. (Iowa)
Associate Professor of Medicine
1018 Demerius
603 Long Leaf Drive
Chapel Hill, N. C.
- V. G. Treml (1967), Ph.D. (North Carolina)
Professor of Economics
1400 Welcome Circle
- Richard J. Trilling (1970), Ph.D. (Wisconsin)
Assistant Professor of Political Science
105 Pinecrest Road
- James Nardin Truesdale (1930), Ph.D. (Duke)
Professor of Greek
105 Pinecrest Road
- Vance Tucker (1964), Ph.D. (California at Los Angeles)
Professor of Zoology
3507 Eastis Drive
- ¹⁷²Arlin Turner (1953), Ph.D. (Texas)
Professor of English
1115 Woodburn Road
Apartment B-11
1829 Front Street
- Mary Neville Turner (1971), M.S.N. (Yale)
Assistant Professor of Nursing
1829 Front Street
- Richard Lovejoy Tuthill (1953), Ed.D. (Columbia)
Professor of Economic Geography
2709 Dogwood Road
- Malcolm P. Tyor (1955), M.D. (Duke)
Professor of Medicine
810 East Forest Hills Boulevard
- Lee Tyrey (1970), Ph.D. (Illinois)
Assistant Professor of Obstetrics and Gynecology
and Assistant Professor of Anatomy
3306 Rolling Hills
- Raymond U (1967), Ph.D. (Kyoto Univ.)
Assistant Professor of Radiology
3916 Linden Terrace
- Luella Jane Uhrhane (1947), M.P.H. (North Carolina)
Associate Professor of Health Education
2712 Circle Drive
- Bruno J. Urban (1972), M.D. (Univ. of Cologne, Germany)
Associate Professor of Anesthesiology
5414 Beaumont Drive
- James R. Urbaniak (1969), M.D. (Duke)
Associate Professor of Orthopaedics
3918 Dover Road
Apartment 10
2201 Morehead Avenue
- Senol Utku (1970), Sc.D. (Massachusetts Inst. of Tech.)
Professor of Civil Engineering
2201 Morehead Avenue
- ¹⁷³Arturo Valenzuela (1970), Ph.D. (Columbia)
Assistant Professor of Political Science
1706 Shawnee Street
- William W. Van Alstyne (1964), LL.B. (Stanford)
William R. Perkins Professor of Law
1702 Woodburn Road
- Thomas C. Vanaman (1970), Ph.D. (Duke)
Assistant Professor of Microbiology
1007 Minerva Avenue
- James H. Vander Weide (1972), B.A. (Cornell)
Instructor in Monogement Sciences
1010 Demerius Street
- ¹⁷⁴Roy Van Varner (1971), M.D. (North Carolina)
Associate in Psychiatry
158 Westbrook Drive
Butner, N. C.
- Vartan Vartanian (1961), M.D. (Cluj, Rumania)
Associate Professor of Anesthesiology
1533 Hermitage Court
- James W. Vaupel (1972), Ph.D. (Harvard)
Assistant Professor of Policy Sciences and Public Affairs
and Assistant Professor of Business Administration
2628 Cammie Street
- John M. Vernon (1966), Ph.D. (Massachusetts Inst. of Tech.)
Professor of Economics
1001 Gloria Avenue
- Adriaan Verwoerd (1962), M.D. (Amsterdam)
Professor of Psychiatry
2747 Sevier Street
- Aleksandar S. Vesic (1964), D.Sc. (Belgrade)
J. A. Jones Professor of Civil Engineering
1722 Duke University Road
- P. Aarne Vesilind (1970), Ph.D. (North Carolina)
Assistant Professor of Civil Engineering
416 Highview Drive
Chapel Hill, N. C.
- ¹⁷⁵Lois Vick (1967), M.A.T. (Duke)
Lecturer in English
2606 University Drive
- Elia E. Villaneuva (1969), M.A. (Duke)
Assistant Professor of Physical Therapy
Route 1, Box 268

¹⁷²Sabbatical leave 1973-74.

¹⁷³Leave of absence, spring, 1973-74.

¹⁷⁴Through 2-15-73.

¹⁷⁵Through 8-31-73.

Patrick R. Vincent (1954), Ph.D. (Johns Hopkins) Associate Professor of Romance Languages	1635 Marion Avenue Route 1, Box 307-1 Murphy School Road
F. Stephen Vogel (1961), M.D. (Western Reserve) Professor of Pathology	
Steven Vogel (1966), Ph.D. (Harvard) Associate Professor of Zoology	1212 Woodburn Road
Michael Robert Volow (1972), M.D. (Seton Hall Coll. of Med.) Associate in Psychiatry	2838 Stuart Drive
¹⁷⁶ Louis D. Volpp (1967), Ph.D. (Iowa) Professor of Business Administration	5312 Yardley Terrace
Howard Wachtel (1968), Ph.D. (New York Univ.) Associate Professor of Biomedical Engineering and Assistant Professor of Physiology	3212 Sherbon Drive
Joseph A. C. Wadsworth (1965), M.D. (Duke) Professor of Ophthalmology	1532 Pinecrest Road
John P. Waggoner, Jr. (1957), B.D. (Duke), B.S. in L.S. (North Carolina) Associate Professor in the Faculty of Arts and Sciences and Associate Librarian	2812 Devon Road
Galen Strohm Wagner (1970), M.D. (Duke) Assistant Professor of Medicine	3415 Cromwell Road Route 6, Box 12 Chapel Hill, N. C.
Joseph Lawrence Wagner (1972), D.V.M. (Ohio State) Assistant Professor of Microbiology and Immunology	
Linda C. Wagner (1972), M.S.N. (North Carolina) Instructor in Nursing	4-C Towne House Apartments Chapel Hill, N. C.
Stephen A. Wainwright (1964), Ph.D. (California at Berkeley) Associate Professor of Zoology	3812 Dover Road
William D. Walker (1971), Ph.D. (Cornell) Professor of Physics	1024 Gloria Avenue
Andrew G. Wallace (1964), M.D. (Duke) Walter Kempner Professor of Medicine and Assistant Professor of Physiology	3413 Rugby Road
Michael A. Wallach (1962-72; 1973), Ph.D. (Harvard) Professor of Psychology	14 Heath Place
Abe Walston, II (1969), M.D., LL.B. (Duke) Assistant Professor of Medicine	622 Starmount Drive
Richard L. Walter (1962), Ph.D. (Notre Dame) Associate Professor of Physics	1614 Woodburn Road
Hsioh Shan Wang (1965), M.B. (National Taiwan Univ. Med. Coll.) Associate Professor of Psychiatry	2832 McDowell Street
Paul P. Wang (1968), Ph.D. (Ohio State) Associate Professor of Electrical Engineering	2709 Montgomery Street
Calvin Lucian Ward (1952), Ph.D. (Texas) Associate Professor of Zoology	1726 Duke University Road
Frances Ward (1969), Ph.D. (Brown) Associate Professor of Microbiology and Immunology and Assistant Professor of Experimental Surgery	424 Carolina Circle
Bruce W. Wardropper (1962), Ph.D. (Pennsylvania) William H. Wonnemaker Professor of Romance Languages	3443 Rugby Road
Dennis Warner (1973), Ph.D. (Stanford) Assistant Professor of Civil Engineering	2739 Montgomery Street
Seth L. Warner (1955), Ph.D. (Harvard) Professor of Mathematics	2433 Wrightwood Avenue 1726 Allard Road Chapel Hill, N. C.
Alvin C. Warren, Jr. (1973), J. D. (Chicago) Associate Professor of Law	
Richard Lyness Watson, Jr. (1939), Ph.D. (Yale) Professor of History	109 Pinecrest Road
Robert Andrew Waugh (1972), M.D. (Pennsylvania) Assistant Professor of Medicine	1016 Stonehedge Avenue
Robert E. Webster (1970), Ph.D. (Duke) Associate Professor of Biochemistry	3720 Saint Marks Road
John C. Weed, Jr. (1973), M.D. (Tulane) Assistant Professor of Obstetrics and Gynecology	4023 Deepwood Circle

¹⁷⁶Through 8-31-73.

- Benjamin F. Weeks (1972), M.S. (Clemson)
Visiting Assistant Professor of Aerospace Studies 1719 Euclid Road
- E. Roy Weintraub (1970), Ph.D. (Pennsylvania)
Associate Professor of Economics 1601 Hermitage Court
 Apartment 4
- Morris Weisfeld (1967), Ph.D. (Yale)
Professor of Mathematics 2100 House Avenue
- ¹⁷⁷John C. Weistart (1969), J.D. (Duke)
Professor of Law 3818 Darby Road
- Henry Weitz (1950), Ed.D. (Rutgers)
Professor of Education 2716 Circle Drive
- ¹⁷⁸Bruce A. Wells (1964), M.S.E.E. (Oregon State)
Assistant Professor of Electrical Engineering 2729 Montgomery Street
- Richard L. Wells (1962), Ph.D. (Indiana)
Professor of Chemistry 3313 Randolph Road
- Samuel A. Wells, Jr. (1970), M.D. (Emory)
*Associate Professor of Surgery and Assistant Professor
 of Immunology* 2501 Wrightwood
- Paul Welsh (1948), Ph.D. (Cornell)
Professor of Philosophy 2749 Dogwood Road
- Martha L. Wertz (1960), M.S.W. (Tulane)
Assistant Professor of Psychiatric Social Work 2717 Augusta Drive
- ¹⁷⁹Joseph Cable Wetherby (1947), M.A. (Wayne)
Associate Professor of English 2604 Sevier Street
- Robert Whalen (1961), M.D. (Cornell)
Associate Professor of Medicine 3509 Westover Road
- Alan D. Whanger (1970), M.D. (Duke)
Assistant Professor of Psychiatry 3316 Dixon Road
- Robert W. Wheat (1958), Ph.D. (Washington)
*Associate Professor of Microbiology
 and Assistant Professor of Biochemistry* 2720 Montgomery Street
- Charles W. White (1970), Ph.D. (Stanford)
Assistant Professor of Psychology 2514 Nation Avenue
- Fred M. White (1959), M.F. (Duke)
Assistant Professor of Silviculture 3323 Rolling Hills Road
- Richard Alan White (1963), Ph.D. (Michigan)
Professor of Botany 608 Duluth Street
 Apartment K2B
- Suzanne White (1970), M.A. (California at Los Angeles)
Instructor in Physical Education 1500 Duke University Road
 Route 7
- Willamay Whitner (1969), Ed.D. (Columbia)
Professor of Nursing 122 Landsbury Drive
- Frances K. Widmann (1971), M.D. (Western Reserve)
Associate Professor of Pathology 1504 Cumberland Road
 Chapel Hill, N. C.
- Richard Herbert Weibe (1972), M.D. (Saskatchewan)
Associate in Obstetrics and Gynecology Apartment D
 3090 Colony Road
- Henry M. Wilbur (1973), Ph.D. (Michigan)
Assistant Professor of Zoology 2703 Sevier Street
- Karl Milton Wilbur (1946), Ph.D. (Pennsylvania)
James B. Duke Professor of Zoology Apartment 48-A
 3022 Chapel Hill Road
- Robert L. Wilbur (1957), Ph.D. (Michigan)
Professor of Botany 2613 Stuart Drive
- Pelham Wilder, Jr. (1949), Ph.D. (Harvard)
*Professor of Chemistry and Professor of Pharmacology
 in the Department of Physiology and Pharmacology* 2514 Wrightwood Avenue
- Catherine M. Wilfert (1969), M.D. (Harvard)
*Assistant Professor of Pediatrics and Assistant
 Professor of Virology in the Department of
 Microbiology and Immunology* Route 2, Piney Mountain Road
 Chapel Hill, N. C.
- Robert H. Wilkinson, Jr. (1967), M.D. (Washington Univ.)
Associate Professor of Radiology 3519 Courtland Drive
- William E. Wilkinson (1967), Ph.D. (North Carolina)
Assistant Professor of Mathematics 2013 North Lakeshore Drive
 Chapel Hill, N. C.

¹⁷⁷Leave of absence 1-1-74 through 6-30-74.

¹⁷⁸Retired 8-31-73.

¹⁷⁹Sabbatical leave, spring, 1973-74.

- Hilda Pope Willett (1948), Ph.D. (Duke)
Professor of Bocteriology 901 Wakestone Circle
Raleigh, N. C.
- George Walton Williams (1957), Ph.D. (Virginia)
Professor of English 6 Sylvan Road
- Redford Brown Williams, Jr. (1972), M.D. (Yale)
Assistont Professor of Psychiatry ond Assistant
Professor of Medicine Holly Hills Apartment 15-C
2748 Middleton Street
- William Hailey Willis (1963), Ph.D. (Yale)
Professor of Greek in the Department of Classicol Studies 1419 Dollar Avenue
- James F. Wilson (1967), Ph.D. (Ohio State)
Associate Professor of Civil Engineering 1109 Archdale Road
- James W. Wilson (1969), Ph.D. (Kentucky)
Assistont Professor of Pothology 2711 Oberlin Drive
- John Wilson (1968), D.Phil. (Oxford)
Associate Professor of Sociology 3130 Pickett Road
- Robert L. Wilson (1970), Ph.D. (Northwestern)
Research Professor of Church ond Society 237 Monticello Avenue
- Ruby L. Wilson (1959-70; 1971), Ed.D. (Duke)
Professor of Nursing ond Assistont Professor of
Community Health Sciences 2436 Tryon Road
- Thomas G. Wilson (1959), Sc.D. (Harvard)
Professor of Electricol Engineering 2721 Sevier Street
- William P. Wilson (1961), M.D. (Duke)
Professor of Psychiatry 1209 Virginia Avenue
- ¹⁸⁰Cliff W. Wing, Jr. (1965), Ph.D. (Tulane)
Associate Professor of Psychology 2722 Spencer Street
- Orval Wintermute (1958), Ph.D. (Johns Hopkins)
Associate Professor of Religion ond Lecturer in Old Testament 1103 North Duke Street
- Loren Ralph Withers (1949), M.S. (Julliard)
Professor of Music 2741 Dogwood Road
- Ronald G. Witt (1971), Ph.D. (Harvard)
Associate Professor of History 173 West Margaret Lane
Hillsborough, N. C.
- ¹⁸¹Benjamin Wittels (1961), M.D. (Minnesota)
Professor of Pothology 2308 Prince Street
- Myron L. Wolbarsht (1968), Ph.D. (Johns Hopkins)
Clinical Professor of Ophthalmology, Adjunct Professor of
Physiology, Adjunct Professor of Biomedical Engineering,
ond Lecturer in Psychology 1435 Acadia Street
- Walter G. Wolfe (1972), M.D. (Temple)
Assistont Professor of Surgery 3824 Hillgrand
Route 7, Box 169
Raleigh, N. C.
- A. Donald Wolff (1973), M.D. (North Carolina at Chapel Hill)
Assistont Professor of Rodiology
- Kai Tak Wong (1971), Ph.D. (Illinois)
Assistont Professor of Mothematics 2610 Duke Homestead Road
- Max Atkin Woodbury (1966), Ph.D. (Michigan)
Professor of Biomothematics in Community Health
Sciences ond Professor of Computer Science 4008 Bristol Road
- Barnes Woodhall (1937-43; 1945), M.D. (Johns Hopkins)
James B. Duke Professor of Neurosurgery 4006 Dover Road
- Nancy F. Woods (1972), M.S.N. (Washington)
Instructor in Nursing 1320 Clermont Drive
- A. Lorraine Woodyard (1954), M.Ed. (North Carolina at Greensboro)
Associate Professor of Physical Education 880 Louise Circle
- Boyd T. Worde (1958), M.D. (Tennessee)
Associate Professor of Rodiology 2512 Sevier Street
- Joseph B. Workman (1971), M.D. (Maryland)
Associate Professor of Rodiology 219 Country Club Road
- Julia Ann Hedgepeth Wray (1955), M.F.A. (North Carolina at Greensboro)
Assistont Professor of Physical Education 911 Carver Street
Apartment B-10
- ¹⁸²Carol A. Wright (1973), M.M.S. (Einory)
Associate in Physical Therapy 3600 Tremont Drive

¹⁸⁰Sabbatical leave 1973-74.

¹⁸¹Leave of absence 9-1-72 through 6-30-73.

¹⁸²Through 6-30-73.

- Donald Wright (1967), Ph.D. (Purdue)
Assistant Professor of Mechanical Engineering 5428 Highland Drive
- James E. Wuenschel (1970), Ph.D. (Wisconsin)
Assistant Professor of Forest Ecology Route 1, Box 273-B
Timberlake, N. C.
- James B. Wynaarden (1956-65; 1967), M.D. (Michigan)
Hones Professor of Medicine 707 Morehead Avenue
- Linda D. Wyrick (1972), Ph.D. (Arizona)
Associate in Medical Psychology in the Department of
Psychiatry 839 Shady Lawn Drive
Chapel Hill, N.C.
- William S. Yamanashi (1973), Ph.D. (Massachusetts Inst. of
Tech.)
Associate in Ophthalmology Ophthalmology Department
P. O. Box 3802
- David O. Yandle (1967), Ph.D. (North Carolina State)
Associate Professor of Forest Mathematics 2612 McDowell Street
- William E. Yarger (1971), M.D. (Baylor)
Assistant Professor of Medicine 3406 Cambridge Road
- William P. Yohe (1958), Ph.D. (Michigan)
Professor of Economics 3412 Rolling Hill Road
- Charles R. Young (1954), Ph.D. (Cornell)
Professor of History 2929 Welcome Drive
- Franklin W. Young (1968), Ph.D. (Duke)
Amos R. Keorns Professor of New Testament and
Patristic Studies 132 Pinecrest Road
- Helen Rose Young (1957), M.S. (William & Mary)
Assistant Professor of Nursing 5400 Newhall Road
- W. Glenn Young, Jr. (1954), M.D. (Duke)
Professor of Surgery 3718 Eton Road
- ¹⁸³Martin Zade (1972), M.D. (Uppsala Univ., Sweden)
Visiting Associate Professor of Physiology 1609 Cole Mill Road
- Julie H. Zalkind (1973), Ph.D. (Johns Hopkins)
Assistant Professor of Management Sciences in the Graduate School
of Business Administration 3918 Wynford Drive
- William W. K. Zung (1966), M.D. (Texas)
Professor of Psychiatry 1816 Woodburn Road
- Peter Zwadyk, Jr. (1971), Ph.D. (Iowa)
Assistant Professor of Pathology and Assistant
Professor of Microbiology 4729 Stafford Drive
- Hendrick J. Zweerink (1970), Ph.D. (Cornell)
Associate Professor of Virology in the Department of
Microbiology and Immunology 2309 Prince Street

Adjunct Faculty and Part-Time Instructional Staff*

- Joseph Aicher (1973), M.A. (Marquette)
Preceptor in Political Science 4-A Colonial Apartments
- Paul Wesley Aitken (1964), Th.M. (Duke)
Choplin and Part-Time Assistant Professor of
Clinical Postoral Education 2909 Harriman Drive
- Samuel Allen (1972), J.D. (Harvard)
Visiting Professor of Block Studies (part-time) 304 Carr
- Marcelino Amaya (1966), M.D. (Nacional Autonomia de Mexico)
Assistant Professor of Psychiatry (part-time) 2928 Friendship Road
- James Edward Ames, IV (1973), B.S. (Hampden-Sydney)
Part-Time Instructor in Computer Science 401-S Downing
- Wayne Amick (1973), A.B. (East Carolina)
Artist Associate in Music 222 West Trinity Avenue
- Daniel E. Anker (1973), B.A. (Harpur)
Instructional Assistant in Anthropology 1408 Duke University Road
- David Barison (1973)
Staff Associate in Music 116 Purefoy Road
Chapel Hill, N. C.

¹⁸³Through 9-30-73.

*See also Medical School, page 62.

- Patricia White-Beaver (1973), A.B. (Duke)
Port-Time Instructor in Anthropology P. O. Box 801
 Cary, N. C.
- Mark A. Bebensee (1973), A.B. (Millsapp)
Port-Time Instructor in Economics Apartment 50
 1000 North Duke Street
- Elizabeth J. Bellamy (1973), M.A. (Duke)
Graduate Tutor in English 911 Lambeth Circle
- Richard E. Berkeley (1973), Ph.D. (Alberta)
Port-Time Instructor and Research Associate in Chemistry Apartment 18
 2009 Southwood Drive
- Terrence P. Bisson (1973), M.A. (Duke)
Port-Time Instructor in Mathematics 906 North Buchanan Boulevard
- Ronald Bleier (1973), M.A. (Brooklyn)
Graduate Tutor in English Box 1010, Graduate Center
- Anthony Bocchino (1973), J.D. (Connecticut)
Port-Time Instructor in Law 1007 Oaks Apartments
 Chapel Hill, N. C.
- Anthony J. Brannon (1973), J.D. (North Carolina)
Adjunct Associate Professor of Policy Sciences Snow Hill Road
- W. A. Breytspraak (1973), Ph.D. (Duke)
Port-Time Instructor in Religion Route 2, Box 493
- David S. Broder (1973), M.A. (Chicago)
Adjunct Professor of Policy Sciences 4024 North 27th Street
 Arlington, Virginia
- Graham J. Burkheimer (1972), Ph.D. (North Carolina at Chapel Hill)
Lecturer in Psychology (part-time) 1536 Euclid Road
- William D. Caffrey (1971), LL.B. (Duke)
Adjunct Professor of Law 2902 Round Hill Road
 Greensboro, N. C.
- William C. Calhoun (1973), M.B.A. (Harvard)
*Port-Time Instructor in Management Sciences and the Graduate
 School of Business Administration* 3971 Windy Lane
 Raleigh, N. C.
- David Campbell (1973), Ph.D. (Michigan)
Adjunct Professor of Psychology 1-A Yesteroaks Court
 Greensboro, N. C.
- Cathy Carlson (1972), M.R.E. (Perkins School of Theology)
Graduate Assistant in the Divinity School 1025 West Markham Avenue
- G. Lynn Carlson (1973), Ph.D. (North Carolina at Chapel Hill)
Port-Time Instructor and Research Associate in Chemistry Route 7, 16 Wave Road
 Chapel Hill, N. C.
- John W. Carlton (1955), Ph.D. (Duke)
Adjunct Professor of Preaching in the Divinity School 337 West Pine Street
 Wake Forest, N. C.
- Brian R. Carroll (1973), B.A. (Virginia)
Port-Time Instructor in Mathematics 227 Monmouth Avenue
- Malcolm W. Cass (1973), Ph.D. (Johns Hopkins)
Port-Time Instructor and Research Associate in Chemistry 205 West Markham Avenue
- Robert M. Casto (1972), M.Div. (Methodist Theological School in Ohio)
*Port-Time Instructor in Religion and Graduate Assistant in the
 Divinity School* Apartment D-2-A
 1500 Duke University Road
- Elizabeth Chesney (1973), B.A. (Bryn Mawr)
Port-Time Instructor in Romance Languages Apartment 11
 810 North Duke Street
- Hsi-sheng Chi (1973), Ph.D. (Chicago)
*Adjunct Assistant Professor of Policy Sciences and
 Political Science* Route 4, Box 486
 Chapel Hill, N.C.
- Larry Churchill (1973), Ph.D. (Duke)
Port-Time Instructor in Religion 108 Carr Street
 Chapel Hill, N. C.
- Edgar W. Clark (1963), Ph.D. (California)
Adjunct Associate Professor of Forestry Route 1, Box 62
 Cary, N. C.
- Jo Ann Cohen (1973), B.S. (Maryland)
Port-Time Instructor in Mathematics Apartment 32
 301 Swift Avenue
- Robert Coles (1973), M.D. (Columbia)
Visiting Research Professor in Policy Sciences (part-time) 81 Carr Road
 Concord, Massachusetts
- Mary F. Conde (1973), B.S. (Otterbein)
Port-Time Instructor in Zoology 3844 West Cornwallis Road
- Judith Conger (1971), Ph.D. (Illinois)
Lecturer in Psychology (part-time) 311 Estes Drive
 Chapel Hill, N. C.
- John A. D. Cooper (1973), M.D., Ph.D. (Northwestern)
Adjunct Professor of Policy Sciences 4118 North River Street
 Arlington, Virginia
- Philip Robert Cousin (1969), S.T.B. (Boston)
Visiting Lecturer in The Divinity School 919 Jerome Road
- Peter L. Craig (1973), B.A. (Lafayette)
Port-Time Instructor in Philosophy 2414 West Club Boulevard

- Jeffrey Crow (1973), M.A. (Akron)
Instructional Assistant in History
Apartment B-213
2526 Erwin Raad
- Chicita F. Culberson (1971), Ph.D. (Duke)
Senior Research Associate and Lecturer in Botany
Route 7, George King Raad
- William G. Cunningham (1973), M.B. (Bowling Green)
Part-Time Instructor in Management Sciences and the Graduate
School of Business Administration
200 Seven Oaks Raad
- Andrew Dainis (1972), Ph.D. (Adelaide, Australia)
Part-Time Instructor in Physical Education
Route 4, Box 221
Hillsborough, N. C.
- J. Kenneth Dane (1973), A.B. (Harvard)
Part-Time Instructor in Anthropology
904 East Club Boulevard
- Bryant R. Daniels (1973), B.S. (North Carolina State)
Part-Time Instructor in Management Sciences and the Graduate
School of Business Administration
114 Social Sciences
- J. Michael Davis (1973), Ph.D. (Duke)
Lecturer in Psychology (part-time)
122 Wilkins Drive
- Junius A. Davis (1968), Ph.D. (Columbia)
Lecturer in Psychology (part-time) and Adjunct Professor
of Education
405 Holly Lane
Chapel Hill, N. C.
- Larry Dean (1973), B.A. (Washington)
Part-Time Instructor in Psychology
904 Clarendon Street
- Selma de la Queriére (1971), M.A. (New York Univ.)
Part-Time Instructor in Romance Languages
500 Umstead Drive, 201-A
Chapel Hill, N. C.
- John C. Detwiler (1966), Th.M. (Duke)
Assistant Chaplain Supervisor of Duke Medical Center and
Instructor in Postnatal Care
2733 Spencer Street
P. O. Box 501
- Walter DeVries (1973), Ph.D. (Michigan State)
Adjunct Associate Professor of Policy Sciences
Wrightsville Beach, N. C.
- James B. Dillan (1973), M.A. (Duke)
Part-Time Instructor in Classical Studies
1013 Dacian Avenue
- Harriet Dishman (1973), B.A. (Arizona State)
Part-Time Instructor in Germanic Languages and Literatures
1212 Clarendon Street
- Thomas G. Dzubay (1969), Ph.D. (Minnesota)
Adjunct Assistant Professor of Physics
222 Waadridge Drive
- Frances Chevarley Edmonds (1970), M.A. (Duke)
Part-Time Instructor in Mathematics
1109 Georgia Avenue
- Claudia Erdberg (1973), M.M. (Manhattan School of Music)
Staff Associate in Music
1920 Bedford Street
- Frances Evans (1973), M.M. (North Carolina at Chapel Hill)
Staff Associate in Music
1020 Demerius Street
- Joseph James Falcane (1971), B.A. (Duke)
Part-Time Instructor in Physical Education
1402 Waadburn Raad
Lot 10
- Barbara Fecteau (1973), B.M.E. (Indiana)
Staff Associate in Music
Route 1, Box 209
- Richard Fecteau (1973)
Staff Associate in Music
Route 1, Box 209
- Robert P. Finch (1973), B.A. (Colgate)
Part-Time Instructor in Philosophy
Route 2, Waadland Acres
Chapel Hill, N. C.
- William K. Finley (1973), M.A. (Kentucky)
Graduate Tutor in English
2836 Chapel Hill Road
Apartment 10
- Eileen Finkelstein (1973), M.S. (Stanford)
Part-Time Lecturer in Computer Science
2100 Hause Avenue
- Rager H. Ford (1973), M.A. (Duke)
Graduate Tutor in English
1500 Duke University Raad
- Steven J. Fard (1971), M.A. (Duke)
Part-Time Instructor in Romance Languages
9397 Duke Station
- Max O. Funk, Jr. (1973), B.S. (Pennsylvania State)
Part-Time Instructor in Chemistry
105-B Sueann Court
Carrboro, N. C.
- Edwin R. Garrison (1972), B.D. (Drew Theological Seminary)
Visiting Consultant in The Divinity School
1315 Marreene Road
Apartment 18-E
- Paul L. Gaus (1972), B.S. (Miami)
Part-Time Instructor in Chemistry
2723 Brown Avenue
- Howard B. Gelt (1973), J.D. (Denver)
Part-Time Instructor in Law
1007 Oaks Apartments
Chapel Hill, N. C.

John L. Gerdes (1973), Ph.D. (Duke)
 Port-Time Lecturer in Psychology 1700 Lakewood Avenue
 Apartment 9-H

Lawrence J. Gestaut (1971), B.A. (Lake Forest)
 Port-Time Instructor in Chemistry 1505 Duke University Road

Robert G. Ghirardelli (1962), Ph.D. (California Inst. of Tech.)
 Adjunct Associate Professor of Chemistry 1404 Anderson Street

William H. Gilbert (1969), M.A. (Duke)
 Graduate Tutor in English 3204½ Clark Avenue
 Raleigh, N. C.

Roy A. Gilchrist (1968), M.P.H. (North Carolina)
 Port-Time Instructor in Physical Education Apartment 6-D
 1808 Chapel Hill Road

James Gilmore (1973), M.A. (Julliard)
 Artist Associate in Music 1900 House Avenue

Edward F. Glusman, Jr. (1972), M.Div. (Western Theological Seminary)
 Graduate Assistant in The Divinity School 1939 Morehead Avenue

John Gadbey (1973), B.A. (New School for Social Research)
 Port-Time Instructor in Philosophy Route 1, Box 313

Lawrence C. Goodwyn (1971), Ph.D. (Texas)
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Celia Leyte-Vidal, M.S.L.S. <i>Descriptive Cataloger</i>	4168 Deepwood Circle
Jesus Leyte-Vidal, M.S.L.S., J.D. <i>Latin American Librarian</i>	4168 Deepwood Circle
Wen-chouh Lin, M.A., M.S.L.S. <i>Descriptive Cataloger</i>	920 Lambeth Circle
Bertha R. Livingstone, M.A., M.S.L.S. <i>Subject Cataloger</i>	2827 Ridge Road
Jane G. McKean, M.S.L.S. <i>Reference Librarian</i>	1010 N. Gregson Street
Avinash Maheshwary, Dip. L.S., M.A. <i>Bibliographer and Cataloger for South Asia</i>	2206 Chapel Hill Road
Heather S. Miller, M.A.L.S. <i>First Assistant for Serials</i>	G-1 University Garden Apts. Chapel Hill, N. C.
Mary Catherine Mishler, M.A.L.S. <i>Assistant for Documents and Maps</i>	3621 Cole Mill Road
Sara M. Mobley, M.S.L.S. <i>Subject Cataloger</i>	1007 W. Trinity Avenue
Pauline L. Nease, A.B. <i>Head of Serials Department</i>	1010 Rosehill Avenue
Albert A. Nelius, M.Div., M.S.L.S. <i>Assistant Head of Subject Cataloging</i>	3112 Sprunt Avenue
Taby S. New, A.B. <i>Descriptive Cataloger</i>	909 Greenwood Road Chapel Hill, N. C.
Mary E. Plawden, A.B.L.S. <i>Head of Acquisitions Department</i>	619 Swift Avenue
Jae C. Rees, M.S.L.S. <i>Reference Librarian</i>	Pleasant Green Road
Mattie Russell, Ph.D. <i>Curator of Manuscripts</i>	2209 Waadrow Street

Nina E. Sagatov, M.S.L.S. Subject Cataloger	108 Stinson Street Ext. Chapel Hill, N. C.
Jahn L. Sharpe III, Ph.D. Curatar of Rare Baaks	815 Camden Avenue
Mary O. Shuford, A.B.L.S. Subject Cataloger	805 Clarendon Street
Ann F. Stane, M.S.L.S. Undergraduate Librarian	5114 Pine Trail Drive
Jane Sturgeon, B.S.L.S. Head of Descriptive Cataloging	1607 Peace Street Apartment 3-E
Mary Ellen Templeton, M.A., S.M. Descriptive Cataloger	1505 Duke University Road
Geraldine B. Van Goethem, M.S.L.S. Descriptive Cataloger	829 Tinkerbell Road Chapel Hill, N.C.
Jean Weldon, M.S.L.S. Descriptive Cataloger	Apt. 28-K 707 Louise Circle
Erma P. Whittington, B.S.L.S., M.A. Head of Subject Cataloging	2402 Wrightwood Avenue

East Campus Library

Evelyn J. Harrison, B.S.L.S. Librarian	2739 Sevier Street
Margaret K. Mattis, M.S.L.S. Reference Librarian	208 Hillsbarough Street Chapel Hill, N. C.
Betty Young, M.S.L.S. Head of the Circulation Department	2929 Welcame Drive

Art History Library

Edith Hassald, Dip. L.S. Librarian	Apartment 6 2030 Bedford Street
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Biology-Forestry Library

Edwina D. Johnson, B.S.L.S. Librarian	1606 Peace Street
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Chemistry Library

Elizabeth A. Schadel, M.S.L.S. Librarian	Apartment 5 House Avenue
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Divinity School Library

Donn Michael Farris, M.S. in L.S., M.Div. Librarian	921 N. Buchanan Boulevard
Harriet V. Leonard, M.S. in L.S., M.Div. Reference Librarian	Apartment F-1-B University Apartments
Betty K. Walker, B.A. Circulotion Librarian	1518 James Street
Mary S. Rabinsan, A.B. Assistant Circulation Librarian	Route 2, Box 8 Eno Mobile Park

School of Engineering Library

Alice T. Wilson, M.S.L.S. Librarian	5B Colonial Apartments
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Physics-Mathematics Library

Mary Cox, B.A. Librarian	1913 University Drive
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Law School Library

Igar I. Kavass, LL.B. Law Librarian	2645 Umstead Road
Gene Teitelbaum, M.L.S., LL.B. Associate Law Librarian	1505 Duke University Raad
Daris Bieber, M.L.S. Reference Librarian	2752 Middleton Street

Mary Katherine Gamewell, M.S.L.S. Acquisitions Librarian	2112 Broad Street
Alice W. Hollis, Ph.B. Serials Cotalager	104 Glendale Drive Chapel Hill, N.C.
Donna J. Melharn, M.A., M.A. in L.S. Serials Librarian	1505 Duke University Road
Frederic C. Pearson, M.S. in L.S. Circulation Librarian	501 Dupant Drive
Carolyn Bower Ditty, B.S.Ed. Librory Assistant	500 Dupant Drive
Jane Faerster, B.A. Library Assistant	930 N. Greensboro Street Carrbora, N. C.
Helene Kurzweil Lorber, B.A. Library Assistant	2716 Middleton Street
Larena Smith Library Assistant	Route 1, Lot 5B Hillsbarough, N. C.

Medical Center Library

G. S. Terence Cavanagh, B.L.S. Director ond Curatar of the Trent Collection	42 Kimberley Drive Apartment 10 2007 Hause Avenue
Warren P. Bird, M.S. Associate Director	610 Massey Avenue
Canstance M. Tatum, M.S. Chief Cotalager	Apartment 3062-F Colony Road
Mary Ann Brawn, M.S. Chief of Reader Services	28 Mt. Bolus Road Chapel Hill, N. C.
Eula Wheeler, M.S. Acquisitions Librarian	Apartment 6-C 1600 Anderson Street
Kathryn Kruse, M.A. Reference Librarian	3204 Hope Valley Road
Susan C. Smith, B.S., M.F.A. Assistont Curatar of the Trent Collection	1608 Glendale Avenue
Peter King, B.A. Circulation Assistant	Apartment 3062-F Colony Road
Judy Woodburn, M.S. Serials Librorian	

Medical Sciences Branch

Virginia DeTurk Librarian	114 Newell Street
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Nursing School Library

Katina Walser Librarian	178 Daniels Road Chapel Hill, N. C.
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Government and Administrative and Instructional Staff

The University Trustees		36
Trustees Emeriti		21
General Administration		21
Faculty and Administrators Emeriti		120
*Instructional Staff		1402
Professors	406	
Associate Professors	262	
Assistant Professors	329	
Associates	93	
Instructors	31	
Lecturers	5	
Visiting Professors and Lecturers	14	
Professors	2	
Associate Professors	2	
Assistant Professors	9	
Lecturers	1	
Instructors	0	
Part-Time:		
Adjunct Faculty and Instructional Staff (except Medical School)	247	
Adjunct Faculty, Medical School	15	
Research Associates		153
Clinical Faculty, Medical School		168
†Educational Administration		35
‡Business Administration		31
Alumni Affairs		10
§Institutional Advancement		15
Public Relations		7
** Student Affairs		16
††Other Officers and Staff		93
Art	3	
Athletics	32	
Audio Visual Education-Medical Center	8	
Duke University Press	8	
Food Services	28	
Music	4	
University Stores	7	
††The University Libraries		91
	TOTAL	2219

*Includes 9 officers listed with General Administration.

†Does not include 7 listed with General Administration; 32 with academic rank listed with Instructional Staff.

‡Does not include 4 listed with General Administration; 1 with academic rank listed with Instructional Staff.

§Does not include 1 listed with General Administration.

**Does not include 6 with academic rank listed with Instructional Staff.

††Does not include 14 with academic rank listed with Instructional Staff.

‡‡Does not include 4 with academic rank listed with Instructional Staff.



Appendix

Government

1. THE INDENTURE OF TRUST BY WHICH THE UNIVERSITY WAS CREATED

Among the provisions of James B. Duke's Indenture of Trust was an educational institution to be known as Duke University, to the building and support of which he made provision at the time of execution of the Indenture and later by additions thereto by the operation of his Will. In respect to Duke University the Indenture contains the following provisions:

I. (In Article FOURTH) The Trustees hereunder are hereby authorized and directed to expend as soon as reasonably may be not exceeding Six Million Dollars of the corpus of this trust in establishing at a location to be selected by them within the State of North Carolina an institution of learning to be known as Duke University, for such purpose to acquire such land and erect and equip thereon such buildings according to such plans as the Trustees may in their judgment deem necessary and adopt and approve for the purpose to cause to be formed under the laws of such state as the Trustees may select for the purpose a corporation adequately empowered to own and operate such properties under the name of Duke University as an institution of learning according to the true intent hereof, and convey to such corporation when formed the said lands, buildings and equipment upon such terms and conditions as that such corporation may use the same only for such purposes of such universities and upon the same ceasing to be so used then the same shall forthwith revert and belong to the Trustees of this trust as and become a part of the corpus of this trust for all the purposes thereof.

However, should the name of Trinity College, located at Durham, North Carolina, a body politic and incorporate, within three months from the date hereof (or such further time as the Trustees hereof may allow) be changed to Duke University, then, in lieu of the foregoing provisions of this division "FOURTH" of the Indenture as a memorial to his father, Washington Duke,

who spent his life in Durham and whose gifts, together with those of Benjamin N. Duke, the brother of the party of the first part and of other members of the Duke family, have so largely contributed toward making possible Trinity College at that place, he directs that the Trustees shall expend of the corpus of this trust as soon as reasonably may be a sum not exceeding Six Million Dollars in expanding and extending said University, acquiring and improving such lands, and erecting, removing, remodeling and equipping such buildings, according to such plans, as the Trustees may adopt and approve for such purpose to the end that said Duke University may eventually include Trinity College as its undergraduate department for men, a School of Religious Training, a School for Training Teachers, a School of Chemistry, a Law School, Co-ordinate College for Women, a School of Business Administration, a Graduate School of Arts and Sciences, a Medical School and an Engineering School, as and when funds are available.

II. (In Article FIFTH) Thirty-two per cent of said net amount not retained as aforesaid for addition to the corpus of this trust shall be paid to that Duke University for which expenditures of the corpus of the trust shall have been made by the Trustees under the "Fourth" division of this Indenture so long as its name shall be Duke University and it shall not be operated for private gain, to be utilized by its Board of Trustees, in defraying its administration and operating expenses, increasing and improving its facilities and equipment, the erection and enlargement of buildings and the acquisition of additional acreage for it, adding to its endowment or in such other manner for it as the Board of Trustees of said institution may from time to time deem to be of its best interests, provided that in case such institution shall incur any expense or liability beyond provisions already in sight to meet same, or in the judgment of the Trustees under this Indenture be not operated in a manner calculated to achieve the results intended hereby the Trustees under this Indenture may withhold the whole or any part of such percentage from said institution so long as such character of expense or liabilities or operation shall continue, such amounts so withheld to be in whole or in part either accumulated and applied to the purposes of such University in any future year or years, or utilized for the objects of this Indenture, or added to the corpus of this trust for the purpose of increasing the principal of the trust estate, as the Trustees may determine.

III. (In Article SEVENTH) I have selected Duke University as one of the principal objects of this trust because I recognize that education, when conducted along sane and practical, as opposed to dogmatic and theoretical, lines, is, next to religion, the greatest civilizing influence. I request that this institution secure for its officers, trustees, and faculty, men of such outstanding character, ability, and vision as will insure its attaining and maintaining a place of real leadership in educational world, and that great care and discrimination be exercised in admitting as students only those whose previous records show a character, determination, and application evincing a wholesome and real ambition for life. And I advise that the courses at this institution be arranged, first, with special reference to the training of preachers, teachers, lawyers and physicians, because these are most in the public eye, and by precept and example can do most to uplift mankind, and second, to instruction in chemistry, economics, and history, especially the lives of the great of earth, because I believe that such subjects will most help to develop our resources, increase our wisdom and promote human happiness.

IV. (In Article THIRD) as respects any year or years and any purpose or purposes for which this trust is created (except the payments hereinafter directed to be made to Duke University) the Trustees in their uncontrolled dis-

cretion may withhold the whole or any part of said incomes, revenues and profits which would otherwise be distributed under the "Fifth" division hereof, and either (1) accumulate the whole or any part of the amount so withheld for expenditures (which the Trustees are hereby authorized to make thereof) for the same purpose in any future year or years, or (2) add the whole or any part of the amounts so withheld to the corpus or the trust, or (3) pay, apply and distribute the whole or any part of said amounts to and for the benefit of any one or more of the other purposes of this trust, or (4) pay, apply and distribute the whole or any part of said amounts to or for the benefit of any such like charitable, religious or educational purpose within the State of North Carolina or the State of South Carolina, and/or any such like charitable hospital purpose which shall be selected therefor by Trustees called for the purpose, complete authority and discretion in and for such selection and utilization being hereby given the Trustees in the premises.

2. THE CHARTER OF THE UNIVERSITY

Section 1. That A. P. Tyer, J. H. Southgate, B. N. Duke, G. A. Oglesby, V. Ballard, J. A. Long, J. F. Burton, J. N. Cole, F. A. Bishop, J. G. Brown, C. W. Toms, J. W. Alspaugh, W. R. Odell, J. A. Gray, F. Stikeleather, Kope Elias, S. B. Turrentine, P. H. Hanes, T. F. Marr, G. W. Flowers, M. A. Smith, R. H. Parker, W. J. Montgomery, F. M. Simmons, O. W. Carr, R. A. Mayer, N. M. Journey, Dred Peacock, B. B. Nicholson, W. G. Bradsher, E. T. White, T. N. Ivey, J. B. Hurley, R. L. Durham, W. C. Wilson, and their associates and successors shall be, and continue as they have been, a body politic and corporate under the name and style of DUKE UNIVERSITY, and under such name and style shall have perpetual existence and are hereby invested with all the property and rights of property which now belong to the said corporation, and said corporation shall henceforth and perpetually, by the name and style of DUKE UNIVERSITY, hold and use all the authority, privileges, and possessions it had or exercised under any former title and name, and be subject to all recognized legal liabilities and obligations now outstanding against such corporations.

Section 2. That such corporation is authorized to receive and hold by gift, devise, purchase or otherwise, property, real and personal, to be held for the use of said University and its dependent schools or for the use of either or both (as may be designated in the conveyance or will).

Section 3. That the Trustees shall be thirty-six in number of whom twelve shall be elected by the North Carolina Conference of the M. E. Church, South; twelve by the W. N. C. Conference of the said church; and twelve by the graduates of said University; *Provided*, however, That no person shall be elected a Trustee till he has first been recommended by a majority of the Trustees present at a regular meeting, and the Trustees shall have power to remove any member of their body who may remove beyond the boundary of the State or who may refuse or neglect to discharge the duties of a Trustee. The term of office of Trustees shall be six years, and they shall be so arranged that four Trustees shall be elected by each Conference and four by the graduates every two years. The Trustees shall regulate by bylaws the manner of election of Trustees to be chosen by the graduates. Should there exist a vacancy by death, resignation, or otherwise of any Trustee, the same shall be filled for the unexpired term by the Board of Trustees. That the present Trustees shall continue and remain in office during the term for which they have been heretofore respectively elected.

Section 4. That the said corporation shall be under the supervision, management and government of a president and such other persons as said Trus-

tees may appoint; the said president, with the advice of other persons so appointed, shall from time to time make all needful rules and regulations for the internal government of said University and prescribe the preliminary examinations and terms and conditions on which pupils shall be received and instructed.

Section 5. That said Trustees shall have power to make such rules, regulations, bylaws not inconsistent with the Constitution of the United States and of this State, as may be necessary for the good government of said University and management of the property and funds of the same.

Section 6. That the Trustees shall have power to fix the time of holding their annual and other meetings, to elect a president and professors for said University, to appoint an executive committee to consist of not less than seven members, which committee shall control the internal regulations of said University and fix all salaries and emoluments, and to do all other things necessary for an institution of learning not inconsistent with the laws of this State and of the United States.

Section 7. That the Faculty and Trustees shall have the power of conferring such degrees and marks of honor as are conferred by colleges and universities generally; and that five Trustees shall be a quorum to transact business.

Section 8. That all laws and parts of laws or of the charter heretofore granted which are in conflict with this act are hereby repealed.

Section 9. That this act shall be in force from and after its ratification and acceptance by the Board of Trustees.

3. THE BYLAWS OF THE UNIVERSITY

Article I. Aims

1. The aims of Duke University are to assert a faith in the eternal union of knowledge and religion set forth in the teachings and character of Jesus Christ, the Son of God; to advance learning in all lines of truth; to defend scholarship against all false notions and ideals; to develop a Christian love of freedom and truth; to promote a sincere spirit of tolerance; to discourage all partisan and sectarian strife; and to render the largest permanent service to the individual, the state, the nation, and the church. Unto these ends shall the affairs of this University always be administered.

Article II. Board of Trustees

1. Powers. All powers of the University shall be vested in a Board of Trustees consisting of thirty-six elected members.

2. Nomination and elections. The Trustees shall be elected as follows: twelve by the North Carolina Conference of the Methodist Church; twelve by the Western North Carolina Conference of the Methodist Church; and twelve by the graduates of Duke University. Each year a roster of nominees shall be referred to the Board by a committee of two faculty members elected by the principal faculty council, two students elected by the principal student council, the president of the Alumni Association and the President of the University as Chairman. The President shall add to the roster nominees proposed by individual students, faculty members and Trustees. For positions to be filled by the graduates of Duke University, the President shall place on the roster nominees proposed by the officers of the National Council and of the General Alumni Association. The Board, after hearing the recommendations of the Executive

Committee, and by a majority of the Trustees present at any regular meeting, shall recommend the persons to be elected Trustees and submit its recommendations to the appropriate conference of the Methodist Church and the graduates.

No person who shall have attained the age of seventy years shall be elected a Trustee.

3. Term. The term of office of a Trustee shall be six years, beginning on the first day of July following election. Terms shall be so arranged that four Trustees shall be elected by each Conference and four by the graduates every two years. No person shall serve more than two consecutive six-year terms, with renewed eligibility for election to the Board following not less than two years absence of membership; provided that Trustees presently (September, 1970) serving a second full term are eligible for re-election for one additional term without an absence of two years.

4. Vacancies. Any vacancy in the membership of the Board shall be filled for the unexpired term by a majority vote of the Trustees present at a regular meeting of the Board from the roster of nominees.

5. Retirement. A Trustee shall retire on the first day of July after he attains the age of seventy, provided however, that Trustees serving on the Board as of September 1970 may complete their current terms, adjusted to July 1. A Trustee who would attain the age of seventy years during a two-year period of ineligibility shall retire at the end of the term for which he was elected, adjusted to July 1.

6. The aforesaid adjustments to July 1 shall reduce by six months the terms of Trustees serving on the Board as of January 1, 1974.

7. Emeritus. The Board may elect a retiring Trustee a Trustee Emeritus. Trustees Emeriti shall be entitled to receive notice of all meetings of the Board and attend and participate in such meetings, but shall not have the right to vote. Trustees Emeriti shall be eligible for membership on any standing committee other than the Executive Committee.

8. Removal. Any Trustee who may refuse or neglect to discharge the duties of a Trustee may be removed by the affirmative vote of three-fourths of the members of the entire Board of Trustees.

Article III. Meetings of the Board

1. Annual Meeting. Annual meetings of the Board of Trustees shall be held on the day next preceding the day on which the graduation exercises take place.

2. Regular Meetings. Regular meetings of the Board shall be held on the Saturday preceding the day on which Founder's Day is celebrated, on the first Friday in March, and on the last Saturday in September.

3. Special Meetings. Special meetings shall be held upon the call of the Chairman, or upon written request of twelve or more Trustees addressed to the Secretary, with a copy to the Chairman specifying the business to be transacted at the meeting.

4. Notice. The Secretary shall give at least five days' notice to each member of the Board stating the time and place of all meetings, and the purpose of any special meeting.

5. Place. All meetings of the Board of Trustees shall be held at Duke University in the City of Durham, North Carolina, except that the Trustees by vote, or written assent, of a majority of the then members of the Board may designate another place for any meeting.

6. Quorum. A majority of the then members of the Board of Trustees shall be a quorum for the transaction of business.

Article IV. Officers of the Board

1. Officers of the Board. The officers of the Board shall be a Chairman, a Vice Chairman and a Secretary.

2. Election. The officers of the Board of Trustees shall be elected at its annual meeting for a term of one year or until their successors are elected and qualified.

3. Duties.

a. The Chairman shall preside at all meetings of the Board, shall represent the Trustees at public meetings of the University, and shall be a member of and Chairman of the Executive Committee.

b. The Vice Chairman shall perform the duties of the Chairman in the absence or disability of the Chairman, or in the event of a vacancy in that office.

c. The Secretary of the University shall also be the Secretary of the Board of Trustees. He shall record the minutes of all meetings of the Board and its Executive Committee, and shall have custody of the Charter, Bylaws, minutes, records and other documents of the Board and its Committees. The Secretary shall send a copy of the minutes to each member of the Board promptly after each meeting of the Board and of the Executive Committee.

4. Vacancies. A vacancy in any office of the Board of Trustees may be filled for the unexpired term by the Board of Trustees.

Article V. Committees of the Board

1. Committees. The standing committees of the Board shall be:

a. The Executive Committee

b. The Business and Finance Committee

c. The Building and Grounds Committee

d. The Institutional Advancement Committee

e. The Academic Affairs Committee

The Board may authorize other committees from time to time.

2. Membership. At each annual meeting, the Board of Trustees shall elect the Chairmen (who shall be Trustees) and other Trustee members of the standing committees to serve for two years, beginning July 1. The Chairman of the Board, the Vice Chairman of the Board, and the President of the University shall be members of the Executive Committee. The President of the University shall be a member of all other standing committees of the Board.

Nominations of faculty and student members shall be for one year terms from lists of prospects developed by the President in consultation with representative student and faculty groups.

The number of Trustee members and non-Trustee members of any standing committee shall be determined by the Board of Trustees after receiving the recommendation of the committee chairman, and the Trustees may authorize and elect such committee members at any meeting in addition to the annual meeting.

Insofar as practical, membership on the standing committees should be rotated.

The Committees of the Board shall have the powers and duties set forth in these Bylaws and such other powers and duties as the Board may delegate to

them. They shall exercise their powers and perform their duties subject to the direction and approval of the Board. They may from time to time make recommendations to the Board for the establishment of new policies or any changes in existing policies, but without decision-making authority except pursuant to specific delegation by the Board or the Executive Committee.

3. Vacancies. Any vacancy in the membership of a standing committee shall be filled by the Chairman of the Board of Trustees after consultation with the President of the University.

4. Meetings. Each standing committee shall meet at such times and places and upon such notice as it may determine, and shall file a copy of the minutes of each meeting with the Secretary of the University.

5. Quorum. A majority of the then members of a standing committee shall be a quorum for the transaction of business.

Article VI. Executive Committee

1. Membership. The Chairman of the Board (to serve as Chairman), the Vice Chairman of the Board (to serve as Vice Chairman), the President of the University, the Chairman of each standing committee, and not more than three Trustee members at large shall constitute the Executive Committee of the Board.

2. Powers and Duties. The Executive Committee shall:

- a. Subject to the provisions of the Charter and these Bylaws exercise all powers of the Board of Trustees in the interim between meetings of the Board.
- b. Appoint an Investment Committee of not less than five members, at least two of whom shall be Trustees, with the other members being selected from Trustees and officers of Duke University, and Trustees and officers of The Duke Endowment, with such powers and duties as may be assigned to it by the Executive Committee.
- c. Coordinate the activities of the other standing committees.
- d. Exercise other duties as prescribed in the Charter or as may be delegated by the Board of Trustees.
- e. Report its actions to the Board of Trustees.

Article VII. Business and Finance Committee

1. Membership. The Business and Finance Committee shall be composed of not less than four Trustees, at least one faculty member, at least one student and the Vice President for Business and Finance, *ex officio*.

2. Powers and Duties. The Business and Finance Committee shall:

- a. Keep informed on, consider proposals for, and make recommendations with respect to, the general business affairs and financial organization of the University.
- b. Receive and review the annual budgets and recommend their approval or modification.
- c. Maintain an ongoing analysis and review of monthly operating statements, periodic construction summary, and internal audit reports.
- d. Recommend the annual appointment of independent auditors. Receive the annual report of the auditors and submit it with recommendations for action.

The Committee shall report its findings and recommendations to the Board of Trustees or the Executive Committee.

Article VIII. Building and Grounds Committee

1. **Membership.** The Building and Grounds Committee shall be composed of not less than five Trustees, at least one faculty member, at least one student, and the Vice President for Business and Finance, *ex officio*.

2. **Powers and Duties.** The Building and Grounds Committee shall consider proposals for, and make recommendations with respect to:

- a. Siting of all buildings and related appurtenances such as utilities, roads, and parking areas.
- b. Commissioning of Project Architects and Engineers, and approval of proposed Contractors for construction projects.
- c. Evaluation and promulgation of continuing Master Plan for long-range development of the total physical environment of the University, including inherent standards of aesthetics and quality.
- d. Evaluation of design characteristics of individual projects for adherence to established standards.
- e. Major renovation work.
- f. Naming of facilities and parts of facilities.

The Committee shall review priorities for construction and shall have authority to accept all new construction on behalf of the University, but shall not incur any expenses not previously authorized by the Board of Trustees or the Executive Committee.

The Committee shall report its findings and recommendations to the Board of Trustees or the Executive Committee.

Article IX. Institutional Advancement Committee

1. **Membership.** The Institutional Advancement Committee shall be composed of not less than five Trustees, at least one faculty member, and at least one student. Not less than three of the Trustee members shall be alumni of the University.

2. **Powers and Duties.** The Institutional Advancement Committee shall consider proposals for, make recommendations with respect to, and assist the President in, the financial development, fund raising, public relations, and alumni affairs of the University, and carry out other projects and assignments as directed by the Board.

The Committee shall report its findings, recommendations and results to the Board of Trustees or the Executive Committee.

Article X. Academic Affairs Committee

1. **Membership.** The Academic Affairs Committee shall be composed of not less than six Trustees, not less than faculty members, not less than two students, and the Provost, *ex officio*.

2. **Powers and Duties.** The Academic Affairs Committee shall:

- a. Consider proposals for, and make recommendations with respect to, the educational role of each school, college, and unit of the University and for the University as a whole; provisions for the admission of students at all levels, student life and activities; educational, research, and library program; and the coordination of all educational activities.

- b. Promote and coordinate activities of the Boards of Visitors, review their findings, and transmit their reports to the President, and to the

Board of Trustees. The President shall appoint the members of the Boards of Visitors.

- c. Designate five Trustees from this Committee who, along with an equal number of faculty members designated by the President, and the President, *ex officio*, shall serve as a Committee on Honorary Degrees to make recommendations to the University faculty and the Board of Trustees.
- d. Serve as a Committee on Earned Degrees.
- e. Serve as liaison with the University faculty with respect to academic affairs.

The Committee shall report its findings and recommendations to the Board of Trustees or the Executive Committee.

Article XI. Officers of the University

1. The Officers of the University shall be a President, a Chancellor, a Provost, a Vice President for Business and Finance, a Vice President for Health Affairs, one or more other Vice Presidents, a Treasurer, a Secretary, a University Counsel, and such other officers as the Board of Trustees may elect. One person may hold more than one office, except that the offices of President and Secretary may not be held by the same person.

2. These officers shall be elected by the Board of Trustees at its annual meeting for a term of one year and shall serve until their successors are elected and have taken office.

3. A vacancy in any office of the University may be filled, for the unexpired term, by the Board of Trustees or by the Executive Committee.

Article XII. President

1. The President shall be the chief educational and administrative officer of the University. He shall be responsible to the Board of Trustees for the supervision, management, and government of the University, and for interpreting, and carrying out the policies of the Board of Trustees. He shall have the powers and duties set forth in the Charter and in these Bylaws, and such other powers and duties as the Board of Trustees shall delegate to him.

2. He, or someone designated by him, shall preside at all academic functions and represent the University before the public.

3. He shall preside at all meetings of the University Faculty. He may veto any action taken by the University Faculty or any action taken by the faculty of any college or school in the University and state his reasons for such action.

4. He shall submit a proposed annual budget for the University to the Executive Committee prior to the beginning of the fiscal year covered by the budget.

5. He shall submit to the Board of Trustees an annual report on the condition, operations and needs of the University.

6. He shall recommend to the Board of Trustees persons to be officers of the University other than the President.

Article XIII. Chancellor

1. The Chancellor, under the President, shall exercise the powers and duties of the President as delegated by the President from time to time.

2. He shall assume the powers and duties of the President during the incapacity or absence of the President when specifically authorized by the President or the Board of Trustees, or in case of a vacancy in the Office of President.

Article XIV. Provost

1. The Provost shall be an executive officer of the University, under the President, responsible for all educational affairs and activities, including research, and for all aspects of student activity and welfare. He shall have the powers and duties assigned to him by the President and shall report to the President.

2. He shall be a member of the faculty of each college and school, and ex officio a member of each committee (other than Committees of the Board of Trustees) or other body concerned with matters for which he is responsible.

3. He shall receive recommendations developed by the faculty and educational officers for consideration and recommendation to the President.

Article XV. Vice President for Business and Finance

1. The Vice President for Business and Finance shall be an executive officer, under the President, responsible for all business and finance, including accounting and auditing, preparation of budgets, fiscal planning, and operating of services of the University. He shall have the power and duties assigned to him by the President and shall report to the President.

2. He shall have custody of all records, contracts, agreements, deeds, and other documents of the University or relating to its operations or properties, except minutes of meetings.

3. He shall submit to each regular meeting of the Executive Committee a report on those aspects of the finances of the University that the Executive Committee may require, and shall submit to the Board of Trustees at the end of each fiscal year an account of all receipts and disbursements for the preceding year and a statement in such detail as the Board of Trustees may require of the financial condition of the University at the end of such year.

4. He and the personnel under him shall be bonded to the extent determined by the Executive Committee.

Article XVI. Vice President for Health Affairs

The Vice President for Health Affairs shall be an executive officer, under the President, responsible for the operation of the Medical Center. He shall have the powers and duties assigned to him by the President and shall report to the President.

Article XVII. Treasurer

1. The Treasurer shall report to the President or such officer of the University as the President may direct and shall have the powers and duties assigned to him by the President or such other officer.

2. He may receive and disburse investment funds and purchase, sell, or otherwise dispose of investment securities pursuant to the directions of the Executive Committee or Investment Committee, as the case may be.

3. He and the personnel under him shall be bonded to the extent determined by the Executive Committee.

Article XVIII. Secretary

1. The Secretary, under the President, shall have all of the powers and duties set forth in these Bylaws and the powers and duties commonly incident to his office. He also shall have the powers and duties assigned to him by the President and shall report to the President.

2. He shall be the custodian of the seal of the corporation and shall affix and attest to same on all duly authorized contracts, deeds and other documents.

3. He shall maintain an official roster setting forth the status of all persons employed by the University.

Article XIX. University Counsel

The University Counsel shall be the legal advisor to the University and shall be responsible for all matters of a legal nature concerning the University, including litigation, preparation or approval of all contracts, deeds, conveyances, or other documents.

Article XX. Faculty

1. The University Faculty shall be composed of the President, the Chancellor, the Provost, the Vice Presidents, the Secretary (who shall also be the Secretary of the Faculty), all deans, professors, associate professors, and assistant professors, and all other full-time members of the instructional staff who are not candidates for degrees at Duke University, Registrar, and the University Librarian, and such other persons as may be designated by the President and approved by the Executive Committee or the Board of Trustees.

2. The University Faculty shall be responsible for the conduct of instruction and research in the various colleges and schools in the University. It may also consider and make recommendations to the President regarding any and all phases of education at the University.

3. The University Faculty shall approve and recommend to the Board of Trustees the persons it deems fit to receive degrees or other marks of distinction, and the establishment of any new degree or diploma.

4. The University Faculty may organize and exercise its functions through appropriate councils, committees, or other bodies.

5. Each college and school in the University may have a faculty of its own, which shall be composed of the President, the Chancellor, the Provost, the Secretary, and all members of the University Faculty in the particular college or school. Each such faculty shall function under the President and other officers of educational administration and subject to the regulations of the University Faculty.

Article XXI. Appointments, Promotions and Tenure

1. Members of the University Faculty shall be elected, appointed, or promoted by the Board of Trustees or the Executive Committee upon the recommendation of the Provost, with the approval of the President.

2. Except for positions designated as "adjunct" or "clinical", members of the University Faculty, above the rank of instructors (associates in the Medical School), shall have tenure after seven years of continuous service at the University, or such shorter period as may be determined for individual cases by the Board of Trustees or the Executive Committee.

Article XXII. Sabbatical Leaves

1. Each member of the University Faculty of the rank of professor, associate professor, or assistant professor shall be eligible for sabbatical leave after each six years of service to the University. Such leave may be taken for a full year at half salary or a half year at full salary.

2. Sabbatical leave may be granted by the Executive Committee upon the written recommendation of the dean of the appropriate college or school, approved by the Provost and the President.

Article XXIII. Retirement

1. All members of the faculty of the University who are eligible for or participate in the TIAA Plan and who would attain the age of seventy years prior to March 1 of a given academic year shall retire at the end of the preceding academic year and all such members of the faculty who attain the age of seventy years on or after March 1 in a given academic year shall retire at the end of such academic year.

2. The retirement and annuity plan adopted by the University on October 1, 1925, is hereby amended in those respects required to conform with the provisions of the Bylaws.

Article XXIV. The University Libraries

1. The University Libraries are composed of (1) the William R. Perkins Library and its branches, (2) the School of Law Library, and (3) the Medical Center Library and its branches.

2. The University Libraries shall be responsible for such development and dissemination of scholarly and informational resources required by the academic community for instruction, research, study and publication, as designated by the Provost.

3. Professional librarians of the University Libraries shall be composed of the University Librarian, the Librarian of the School of Law, the Director of the Medical Center Library and other such persons as may be designated by the Provost with the approval of the President. The professional librarians shall be appointed or promoted by the Provost, with approval of the President, after the Provost has received recommendations from the University Librarian, the Librarian of the School of Law through the Dean of the School of Law, or from the Director of the Medical Center Library through the Vice President for Health Affairs.

4. The professional librarians of the University Libraries may organize and exercise their functions through appropriate councils, committees, or other bodies.

5. The University Libraries shall function under the President and other officers of educational administration, and subject to the regulations of the professional librarians of the University Libraries, as approved by the Provost.

Article XXV. Fiscal Year, Academic Year and Academic Calendar

1. The fiscal year of the University shall commence on July 1 and end on the following June 30.

2. The academic year of the University shall commence on September 1 and end on the following August 31.

3. The President shall establish the academic calendar for each academic year, and designate the day on which the graduation exercises shall take place.

Article XXVI. Amendment of Bylaws

These Bylaws may be amended at any regular meeting of the Board of Trustees by the affirmative vote of two-thirds of the then membership of the Board, provided that the proposed amendment is mailed by the secretary of the Board to each member at least twenty days before the meeting.

Alumni Organizations

All qualified former students of Duke University are enrolled as members of the General Alumni Association, which meets on the campus each June. The Association elects its officers and alumni representatives to the Athletic Council each spring by mail ballot. Graduate alumni also elect four representatives to the University Board of Trustees in alternate years by mail ballot.

In addition to the General Alumni Association, there are individual sub-associations for seven of the University's ten schools and colleges. These include, at the undergraduate level, The Woman's College, the School of Nursing, and the School of Engineering, and at the graduate and professional level, the Schools of Medicine, Forestry, Law, and Divinity.

Each class that has been graduated from the University also exists as a permanent organization, and its members reunite at intervals of approximately five years. In some 100 locations, where Duke alumni live in concentrated numbers, there are local alumni associations with purposes compatible to those of the General Alumni Association.

The executive body of the organized alumni is the Duke University National Council. Its membership includes representatives from each alumni organization as well as from each University faculty and from the various student bodies. The National Council meets twice each year, at Founders' Day in December and during Alumni Week End in June.

The Department of Alumni Affairs exists as the University's administrative and coordinating agency for the broad spectrum of alumni programs. The Loyalty Fund program of annual giving is also administered by the Department of Alumni Affairs.

The broad purpose of the Duke University alumni organization can best be indicated by quoting Article II of the constitution of the General Alumni Association: "The objects of this Association shall be to unite its members in good fellowship and in cooperative enterprise with the faculties, students, officers, and trustees of Duke University, toward the fulfillment of the University's educational and humanitarian purposes; to aid in providing for the University an atmosphere in which scholarship and learning might flourish and in which the continuing search for truth and enlightenment might proceed unhindered; and in all appropriate ways to assist and stimulate Duke University toward significant achievement and influence."

Gifts and Bequests

Duke University is a privately established institution which derives its principal support from endowment funds and from gifts and grants, thus enabling it to offer both academic and professional training to its students at a fraction of the actual cost. Gifts and grants for both operational and capital development purposes presently account for approximately one-half of the University's annual income. They are essential to the quality of its educational services and to its progress as a center of learning and research.

Gifts to Duke University, of course, fully qualify as tax deductible contributions.

The University welcomes gifts, immediate or deferred, when made without restriction as to use or when designated for any of a broad variety of purposes. Gifts may be of cash, securities, or any kind of real or personal property, depending upon the wishes and the conveniences of the donor, and University

officers are prepared to confer at any time to make sure that both the donor's wishes and possible tax advantages are fully realized.

A number of publications, designed to assist the donor in making a gift, are available, and requests for these or other information will be promptly acknowledged. Such requests should be addressed to the Duke University Development Office, Duke Station, Durham, N.C. 27706.

Deferred gifts may be made through bequests or through insurance, as well as through a variety of trust arrangements. Such gifts may become significant factors in estate planning, and while qualified counseling is essential in most instances, some sample bequest forms may be noted.

GENERAL

I give (devise; if real property) and bequeath to Duke University, a corporation existing under the laws of the State of North Carolina and located in the City and County of Durham, State of North Carolina, and its successors forever, the sum of dollars (or otherwise describe the gift) for the general purposes and uses of the University at the discretion of the Board of Trustees.

SPECIFIC

I give (devise; if real property) and bequeath to Duke University, a corporation existing under the laws of the State of North Carolina and located in the City and County of Durham, State of North Carolina, or its successors forever, the sum of dollars (or otherwise describe the gift) and direct that the income therefrom shall be used for the following purposes, viz. (here describe the use desired).

CODICIL

Having hereinbefore made my last Will and Testament dated and being of sound mind, I hereby make, publish, and declare the following codicil thereto; (here insert clause in same form as if it had been included in body of Will). Except as hereinbefore changed, I hereby ratify, confirm, and republish my said last Will and Testament.

Office of Public Relations

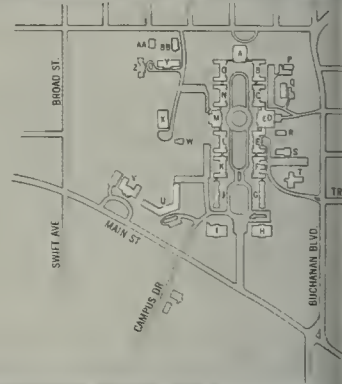
The Office of Public Relations is the official news agency of the University, and all University news, except sports, emanates from this office. The Office maintains the University's relationship with the press, radio and television, and other communications media, and interprets the University—its faculty, its research, and its academic achievements—to the public via these media.

The Office also maintains individual biographical files on all faculty members, students, and staff, as well as files on all University departments and activities. Its files of clippings form a rich source of historical information of the Institution's life. In addition, the Office is a source of information for the many inquiries about Duke University which are received daily from all sections of the nation and from abroad.

MAP OF DUKE UNIVERSITY

East Campus

- | | | | |
|---|-------------------------|----|------------------------------|
| A | Baldwin Auditorium | O | Pegram House |
| B | Bassett House | P | Duke Press |
| C | Brown House | Q | Infirmiry |
| D | Union Building | R | Ark |
| E | Faculty Apartments | S | Crowell Building |
| F | Art Museum Geology | T | Epworth Inn |
| G | Aycock House | U | Gilbert-Addoms House |
| H | East Duke Building | V | Southgate Hall |
| I | West Duke Building | W | Campus Center |
| J | Jarvis House | X | Woman's College
Gymnasium |
| K | Carr Building | Y | Asbury Building |
| L | Giles House | Z | Bivins Building |
| M | Woman's College Library | AA | Art Building |
| N | Alsbaugh House | BB | Branson Building |



West Campus

- | | | | | | | | |
|---|---|---|--|---|-------------------------------------|----|---|
| A | Duke Chapel | H | Hospital Main Entrance | O | Craven Quadrangle | V | Card Gymnasium |
| B | Divinity School | I | Gerontology, D & T,
Clinical Research | P | Wannamaker Hall | W | Indoor Stadium |
| C | Gray Building | J | Duke Hospital | Q | Crowell Quadrangle | X | School of Law |
| D | Perkins Library | K | Sociology, Psychology | R | Clock Tower Court | Y | Gross Chemical Lab |
| E | Language Center | L | Social Sciences | S | Kilgo Quadrangle | Z | Biological Sciences |
| F | Old Chemistry Building | M | Allen Building | T | Union Building | AA | Plant Environment
Laboratory |
| G | Davidson Building
School of Medicine | N | Few Quadrangle | U | Flowers Building
Page Auditorium | BB | Physics Building |
| | | | | | | CC | Nuclear Laboratory |
| | | | | | | DD | School of Engineerin |
| | | | | | | EE | Army Research |
| | | | | | | FF | Medical Center Rese
Buildings |
| | | | | | | GG | Nanaline H Duke M
Sciences Building |
| | | | | | | HH | Warehouse, Shop |
| | | | | | | II | Bell Building |
| | | | | | | JJ | Hanes House |
| | | | | | | KK | School of Nursing |
| | | | | | | LL | Hanes House Annex |
| | | | | | | MM | Pickens Rehabilitat
Center |
| | | | | | | NN | Graduate Center |
| | | | | | | OO | Alumni House |
| | | | | | | PP | Commonwealth Stud
Center |
| | | | | | | QQ | Personnel Office |
| | | | | | | RR | International House |
| | | | | | | SS | Personnel Office |
| | | | | | | TT | Education Improvem
Program,
A Better Chance Proj
International Stud es
Center |
| | | | | | | UU | Campus Stores Office |
| | | | | | | VV | Office of Institutional
Advancement |
| | | | | | | WW | Information Services
Visitors Bureau |
| | | | | | | XX | Admissions Office |
| | | | | | | YY | Edens Quadrangle |
| | | | | | | ZZ | Wade Stadium |







BULLETIN
of Duke University

1974



1975

SCHOOL OF LAW



Bulletin of Duke University

The School of Law

1974-1975

Durham, North Carolina 1974

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May 1974

Number 9

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1974

JANUARY							FEBRUARY							MARCH						
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1975

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Calendar of the Law School

1974

August

- 22 Thursday, 8:30 a.m. - 1:00 p.m.—Registration for all students
Thursday, 2:00 p.m. - 5:00 p.m.—Orientation for first year students
Thursday, 9:00 a.m.—Classes begin for second and third year students
23 Friday, 8:00 a.m.—Classes begin for first year students

November

- 27 Wednesday, 6:00 p.m.—Thanksgiving holidays begin

December

- 2 Monday, 8:00 a.m.—Classes resume
4 Wednesday, 6:00 p.m.—Fall semester classes end for second and third year students
7 Saturday, 6:00 p.m.—Classes end for first-year students
9 Monday, 8:00 a.m.—Fall semester examinations begin for second and third year students
12 Thursday, 8:00 a.m.—Fall semester examinations begin for first year students
20 Friday, 6:00 p.m.—Fall semester examinations end

1975

January

- 3 Friday, 8:00 a.m.—Spring semester classes begin

March

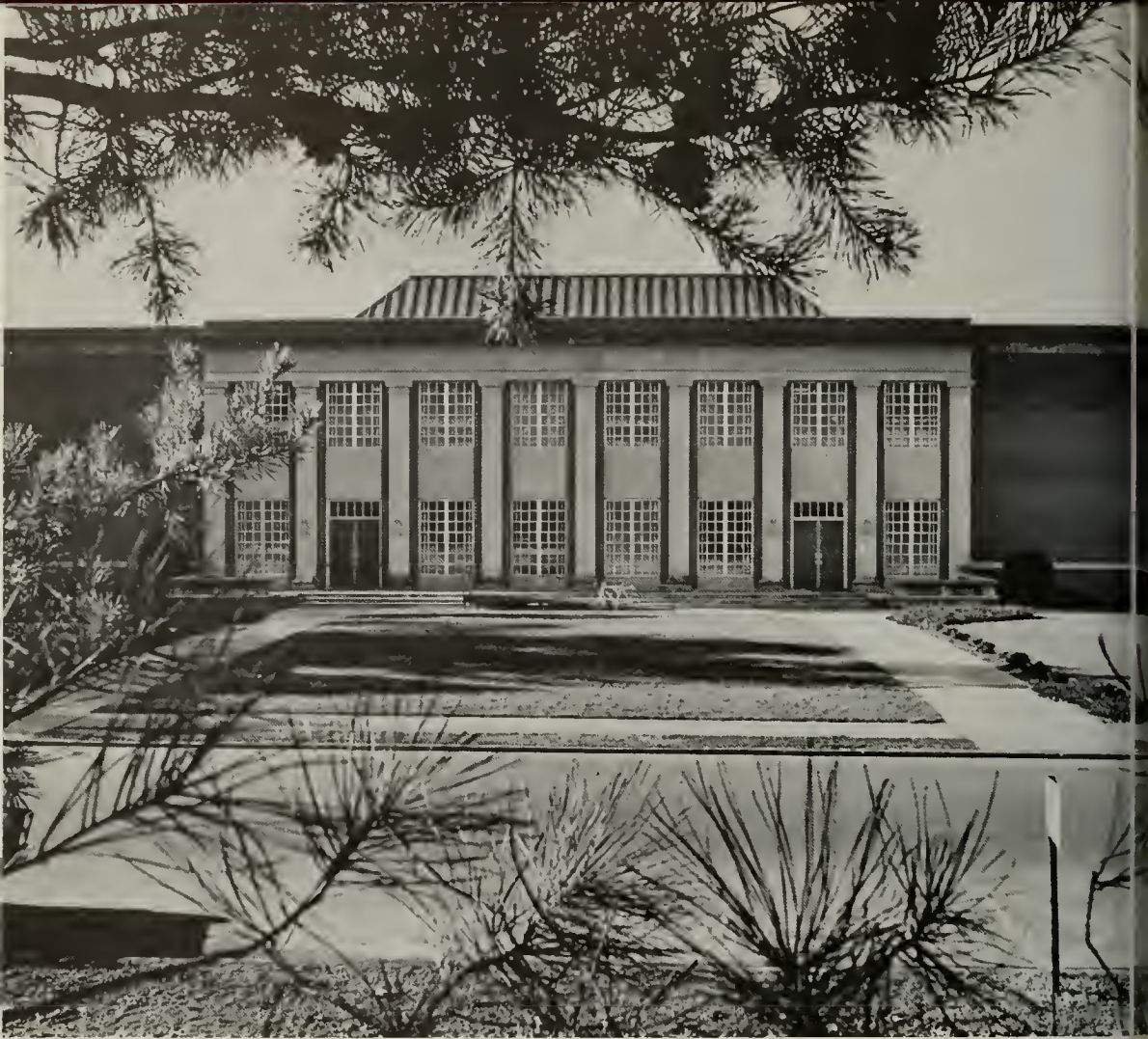
- 8 Saturday, 6:00 p.m.—Spring vacation begins
17 Monday, 8:00 a.m.—Classes resume

April

- 24 Thursday, 6:00 p.m.—Spring semester classes end
26 Monday, 8:00 a.m.—Spring semester examinations begin

May

- 7 Wednesday, 6:00 p.m.—Spring semester examinations end
10 Saturday—Commencement begins
11 Sunday—Commencement



University Administration

Terry Sanford, J.D., LL.D., D.H., L.H.D., D.P.A., *President*

Jahn O. Blackburn, Ph.D., *Chancellor*

Frederic N. Cleaveland, Ph.D., *Pravast*

Charles B. Huestis, *Vice President for Business and Finance*

William G. Anlyan, M.D., *Vice President for Health Affairs*

Juanita M. Kreps, Ph.D., *Vice President*

Stephen Cannada Harward, A.B., C.P.A., *Treasurer*

J. Peyton Fuller, A.B., *Controller*

J. David Ross, J.D., *Director of Development and Director of Campaign Planning*

Harald Lewis, Ph.D., *Vice Provost and Dean of the Faculty*

John C. McKinney, Ph.D., *Vice Pravost and Dean of the Graduate School*

Anne Flowers, Ed.D., *Acting Vice Provost and Acting Dean of Trinity College of Arts and Sciences*

Joel L. Fleishman, LL.M., *Vice Choncellor for Public Policy Education and Research; Director of*

Institute of Policy Sciences and Public Affairs

Frederick C. Joerg, M.B.A., *Assistant Pravost for Academic Administrotion*

Benjamin Edward Powell, Ph.D., *Librarian*

William E. King, Ph.D., *Archivist*

Clark R. Cahaw, Ph.D., *University Registrar*

Olan Lee Petty, Ph.D., *Director of the Summer Session*

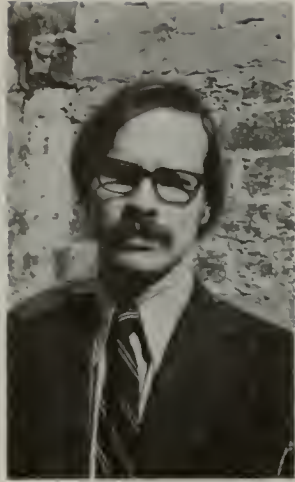
Rufus H. Powell, LL.B., *Secretary of the University*

Victor A. Bubas, B.S., *Assistont to the President*

A. Kenneth Pye, LL.M., *University Counsel*

Law Faculty

Joseph C. Bell, A.B., A.M., LL.B., Assistant Professor of Law
A.B. 1962, University of Colorado; A.M. in Economics 1965, Harvard University; LL.B. 1968, Yale University. Antitrust Division, Department of Justice, Washington, D.C., 1970-1972; Cabinet Task Force on Oil Import Control, Washington, D.C., 1969-1970; Assistant General Counsel, Federal Energy Office, 1974-1975. Assistant Professor of Law, Duke University, since 1972; on leave, 1974-1975.



Anthony J. Bocchino, A.B., J.D., Assistant Professor of Law
A.B. 1969, Bucknell University; J.D. 1972, University of Connecticut. Lecturer in Law and Co-Director of Legal Clinic, University of Connecticut, 1972-1973; Visiting Professor of Political Science, Clark University, spring, 1973; Visiting Professor of Law, University of North Carolina, summer, 1974. Instructor in Law and Graduate Fellow in Clinical Education, Duke University, 1973-1974; Assistant Professor of Law and Director of Clinical Studies, since 1974.



William D. Caffrey, B.S., M.A., J.D., Adjunct Professor of Law
B.S. 1950, Indiana State University; M.A. 1954, George Washington University; J.D. 1958, Duke University. General practice, 1958 to date; faculty, A.B.A. National Institute for Trial Advocacy, Boulder, Colorado, summer, 1973, Reno, Nevada, summer, 1974. Adjunct Professor of Law, Duke University, since 1968.



George C. Christie, A.B., J.D., S.J.D., Diploma in International Law,
Professor of Law

A.B. 1955, J.D. 1957, Columbia University; S.J.D. 1966, Harvard University; Diploma in International Law, 1962, Cambridge University. General practice, 1958-1960; Ford Fellow, Harvard Law School, 1960-1961; Fulbright Scholar, Cambridge University, 1961-1962; Associate Professor of Law, University of Minnesota, 1962-1965; Professor of Law, 1965-1966; Visiting Professor of Law, University of Michigan, summer, 1970; Assistant General Counsel for the Near East and South Asia, Agency for International Development, 1966-1967; Board of Editors, *American Journal of Legal History*; member, American Law Institute. Professor of Law, Duke University, since 1967.



Walter E. Dellinger III, A.B., LL.B., *Professor of Law and Associate Dean*

A.B. 1963, University of North Carolina; LL.B. 1966, Yale University. Associate Professor of Law, University of Mississippi, 1966-1968; Law Clerk to Associate Justice Hugo L. Black, United States Supreme Court, 1968-1969; Visiting Professor of Law, University of Southern California School of Law, 1973-1974. Associate Professor of Law, Duke University, 1966-1972; Professor of Law, since 1972; Associate Dean, since 1974.



John Dugard, B.A., LL.B., *Visiting Professor of Law*

B.A. 1956, LL.B. 1958, University of Stellenbosch; LL.B. and Diploma in International Law, 1965, Cambridge University. Advocate, Supreme Court of South Africa in Durban, 1961-1963; Lecturer, University of Natal, 1961-1963; Lecturer, University of the Witwatersrand, 1965-1974; Visiting Professor of Public and International Affairs, Woodrow Wilson School of Public and International Affairs, Princeton, 1969; Chairman, Governing Committee of the School of Law, University of Witwatersrand, 1971-1973; Vice-President, South African Institute of Race Relations, 1972-1974. Visiting Professor of Law, Duke University, 1974-1975.



Robinson Oscar Everett, A.B., LL.B., *Professor of Law and Associate Editor, Law and Contemporary Problems*

A.B. 1947, LL.B. 1950, Harvard University. Assistant Professor of Law, Duke University, 1950-1951; Military Service, Legal Officer in Air Force, 1951-1953; Commissioner of the U.S. Court of Military Appeals, 1953-1955; general practice, since 1955; U.S. Senate Subcommittee on Constitutional Rights of the Committee on the Judiciary, Counsel, 1961-1964, Consultant, since 1966; Commissioner on Uniform Laws, since 1962; member of American Law Institute, since 1966. Visiting Associate Professor of Law, Duke University, 1956-1961; Adjunct Professor of Law, 1961-1966; Professor of Law, since 1967.



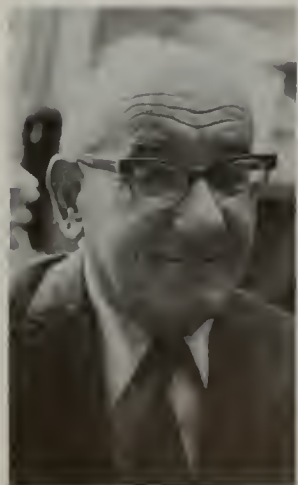
Joel L. Fleishman, A.B., J.D., M.A., LL.M., *Associate Professor of Law*

A.B. 1955, J.D. 1959, M.A. 1959, University of North Carolina at Chapel Hill; LL.M. 1960, Yale University. Assistant to the Director, Walter E. Meyer Research Institute of Law, 1960-1961. Yale Law School; Legal Assistant to the Governor of North Carolina, 1961-1965; Director, 1965-1967, Yale Summer High School; Associate Provost for Urban Studies and Programs, Yale University, 1967-1971; Associate Chairman, Center for the Study of the City and Associate Director for Program Development, Institute of Social Science, Yale University, 1969-1971. Associate Professor of Law and Director, Institute of Policy Sciences and Public Affairs, Duke University, since 1971.



Kazimierz Grzybowski, M.L.L., D.L.L., S.J.D., *Professor of Law and Political Science*

M.L.L. 1931, Doctor of Law and Political Science, 1934, University of Lwow; S.J.D. 1933, Harvard. Associate Professor, School of Law and Graduate School of Diplomacy, University of Lwow, 1936-1939; Judge of District Court of Lwow; Military Service, 1939-1948; Editor, Law Library, Library of Congress, Washington, D.C., 1951-1960; Consultant, Social Science Division, Rand Corporation, Santa Monica, California, 1960-1962; Visiting Professor, Michigan Law School, 1961-1962; Visiting Professor, Yale Law School, 1962-1963; Visiting Professor, Leiden University, Leiden, The Netherlands, 1963-1964; Visiting Professor, Strasbourg University, Strasbourg, France, 1967. Professor of Law and Senior Research Associate, Rule of Law Research Center, Duke University Law School, since 1964.



Clark C. Havighurst, A.B., J.D., *Professor of Law*

A.B. 1955, Princeton University; J.D. 1958, Northwestern University. Military Service, 1958-1960; Research Associate, Small Business Studies, Duke University, 1960-1961; general practice, 1961-1964; Visiting Associate Professor of Law, Stanford University, spring, 1968; Visiting Professor of Law, Northwestern University, spring, 1970; Editor, *Low and Contemporary Problems*, 1965-1970; Scholar in Residence, Institute of Medicine (National Academy of Sciences), 1972-1973; Director, Committee on Legal Issues in Health Care, 1969-1974. Associate Professor of Law, Duke University, 1964-1968; Professor of Law, since 1968.



Richard D. Hobbet, B.A., J.D., *Professor of Law*

B.A. 1949, J.D. 1951, University of Iowa. Trial Attorney, U.S. Internal Revenue Service, 1951-1954; general practice, 1954-1967; Department Editor, *Journal of Toxiation*, since 1963. Professor of Law, Duke University, since 1968.



Walter Johnson, B.S., J.D., *Adjunct Professor of Law*

B.S. 1961, North Carolina Agricultural and Technical State University; J.D. 1964, Duke University School of Law. Captain, United States Air Force, 1965-1968; JAG Officer, 1965-1968; Assistant District Attorney, Superior Court of Guilford County, 1968-1969; private practice, 1968-present; member, North Carolina Bar Association Penal System Study Committee; member, Task Force on Apprehension and Suppression for the North Carolina Law and Order Committee; member, American Bar Association Section on Individual Rights—Sub-Committee on Equal Opportunity in Housing; member, Drug Abuse Committee of the Section of Criminal Law of the American Bar Association; Vice Chairman, School Board of Greensboro, North Carolina. Adjunct Professor of Law, Duke University, since 1973.



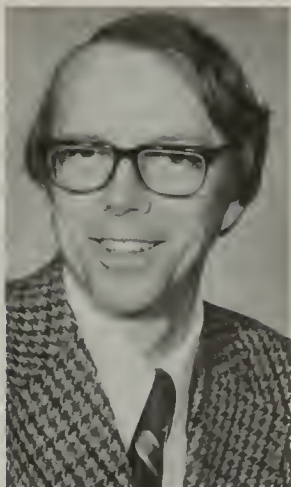
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LL.B. 1956, University of Melbourne. Private practice, 1956-1959; Senior Lecturer, University of Adelaide, 1959-1964; Senior Lecturer, University of Melbourne, 1964-1967; Visiting Professor of Law, University of Alabama, 1966-1967; Associate Professor, Monash University, 1967-1968; Professor and Librarian, University of Alabama, 1968-1970; Professor and Librarian, Northwestern University, 1970-1972. Professor of Law and Law Librarian, Duke University, since 1972.



William Douglas Kilbourn, Jr., B.A., LL.B., Visiting Professor of Law

B.A. 1949, Yale University; LL.B. 1953, Columbia University (Kent Scholar). Public Accounting, New York City, 1949-1950; admitted to practice, Oregon, 1953, Massachusetts, 1962; general practice, 1953-1956; Director, Montana Tax Institute, 1956; Lecturer, Rutgers University, 1952-1953; Assistant Professor of Law, Montana State University, 1956-1957; Associate Professor of Law, University of Missouri, 1957-1959; Professor of Law and Director of the Graduate Tax Program, Boston University School of Law, 1959-1971; Professor of Law, University of Minnesota, since 1971; member, Committee on Corporate Stockholder Relationships, Section of Taxation, American Bar Association; Former Chairman, Tax Section, Boston Bar Association; Lecturer, Federal Tax Institute of New England; Lecturer, Iowa Tax Institute; Lecturer, Kansas Tax Institute; Lecturer, Missouri Bar Tax Institute; Lecturer, New York University Tax Institute; Lecturer, Practising Law Institute. Visiting Professor of Law, Duke University, 1974-1975.



David L. Lange, B.S., LL.B., Associate Professor of Law

B.S. 1960, LL.B. 1964, University of Illinois. Production Coordinator, TV-Motion Picture Dept., University of Illinois, 1959-1961; General Counsel, Mass Media Task Force, National Commission on the Causes and Prevention of Violence, 1968-1969; private practice, 1964-1971; Visiting Associate Professor of Law, Northwestern University School of Law, summer, 1972. Associate Professor of Law, Duke University, since 1971.



Arthur Larson, A.B., M.A., B.C.L., J.D., D.C.L., LL.D., L.H.D.,

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A.B. 1931, LL.D. 1953, Augustana College; M.A. (Juris) 1938,
B.C.L. 1957, D.C.L. 1957, Oxford University; Fellow of Pembroke
College, Oxford. General practice, 1935-1939; Assistant Professor
of Law, University of Tennessee, 1939-1941; Division Counsel,
Office of Price Administration, 1941-1944; Chief, Scandinavian
Branch Foreign Economic Administration, 1944-1945; Associate
Professor, Cornell Law School, 1945-1948, Professor of Law, 1948-
1953; Fulbright Fellowship, London School of Economics, 1952;
Dean, University of Pittsburgh Law School, 1953-1954; Knapp Pro-
fessor of Law, University of Wisconsin School of Law, 1968;
Undersecretary of Labor, 1954-1956; Director, U.S. Information
Agency, 1956-1957; Special Assistant to the President, 1957-1958;
Special Consultant to the President, 1958-1961; Consultant to the
President on Foreign Affairs, 1964-1968; Consultant to the State
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A.B. 1956, Bryn Mawr College; LL.B. 1966, Yale University;
Topics Editor, *Yale Law Journal*. Research Geologist, U.S.
Geological Survey, 1956-1966; Law Clerk to Judge Simon E.
Sobeloff, U.S. Court of Appeals for the Fourth Circuit, 1966-
1967; White House Fellow and Special Assistant to Ambassador
Arthur J. Goldberg, U.S. Mission to the United Nations, 1967-
1968; Senior Research Staff, The Urban Institute, 1968-1970;
Director of Education Studies, The Urban Institute, 1970-1973;
Guest Lecturer in Law, Yale Law School, spring, 1970; Adjunct
Professor of Law, Georgetown University Law Center, 1971-1973.
Associate Professor of Law, Duke University, since 1973.



Charles H. Livengood, Jr., A.B., J.D., Professor of Law

A.B. 1931, Duke University; J.D. 1934, Harvard University.
General practice, 1934-1940, 1945-1948; Regional Attorney for
the Seventh Region, Wage and Hour Division, U. S. Department
of Labor, 1940-1941; Chief of the Wage-Hour Section, Office of the
Solicitor of Labor, 1941-1942; Visiting Professor of Law, Uni-
versity of North Carolina, summer, 1948, 1967-1968; Visiting
Professor of Law, George Washington University, summer, 1949,
1956; Fulbright Lecturer, University of Sydney, Australia, 1958-
1959; member, American Law Institute, since 1947; Consultant,
U.S. Senate Subcommittee on Labor-Management Relations, 1950;
Associate Editor, *Journal of Legal Education*, 1951-1952; public
member, Wage Stabilization Board, Region III, 1952-1953; member,
National Academy of Arbitrators, since 1953; Chairman, North
Carolina General Statutes Commission, since 1970, member, since
1966; Secretary, Section of Labor Relations Law, American Bar
Association, 1967-1968. Lecturer in Law, Duke University, 1946-
1948; Associate Professor of Law, 1948-1951; Professor of Law,
since 1951.



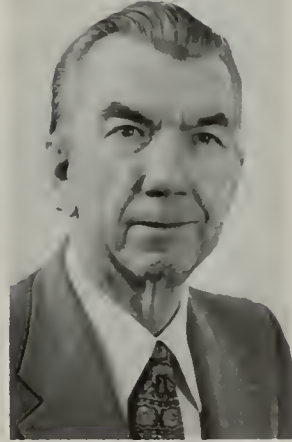
Patricia H. Marschall, B.A., LL.B., LL.M., Professor of Law

B.A. 1953, LL.B. 1955, University of Texas; LL.M. 1968, Harvard University. Private practice, San Angelo, Texas, 1962-1965; Municipal Judge, San Angelo, Texas, 1965-1967; Research Assistant, Harvard, 1968-1969; Associate Professor, Wayne State University Law School, 1969-1971; Visiting Associate Professor of Law, University of Iowa, summer, 1970; Visiting Associate Professor of Law, University of Texas, summer, 1971. Visiting Associate Professor of Law, Duke University, 1971-1972; Professor of Law, since 1972.



Forest Hodge O'Neal, A.B., J.D., J.S.D., S.J.D., James B. Duke Professor of Law and Editor, Corporate Practice Commentator

A.B. 1938, J.D. 1940, Louisiana State University; J.S.D. 1949, Yale University; S.J.D. 1954, Harvard University. Associate Professor of Law, University of Mississippi, 1945-1946, Professor of Law, 1946-1947; Acting Dean and Professor of Law, Walter F. George School of Law, Mercer University, 1947-1948, Dean, 1947-1956; Professor of Law, Vanderbilt University, 1956-1959; member, Board of Editors, *American Bar Association Journal*, since 1971; member, A.A.L.S. Executive Committee, 1969-1970; Visiting Professor of Law, New York University, 1957-1958; Editor, *Corporate Practice Commentator*, since 1959; Visiting Professor of Law, University of Michigan, summer, 1965; Visiting Professor of Law, University of Minnesota, fall, 1965; Visiting Alumni Professor of Law, University of Minnesota, winter and spring, 1973. Professor of Law, Duke University, since 1959; Dean, School of Law, 1966-1968; James B. Duke Professor of Law, Duke University, since 1972.



Joel Francis Paschal, A.B., LL.B., A.M., Ph.D., Professor of Law

A.B. 1935, LL.B. 1938, Wake Forest College; A.M. 1942, Ph.D. 1948, Princeton University. Instructor in Law, Wake Forest College, 1939-1940; USNR, 1942-1946; Instructor, Princeton University, 1946-1947; Research Director, North Carolina Commission for the Improvement of the Administration of Justice 1947-1949; general practice, 1949-1954; Visiting Professor of Law, Duke University, 1952-1953; Visiting Professor of Law, University of North Carolina, spring semester, 1956, fall semester, 1966. Associate Professor of Law, Duke University, 1954-1959; Professor of Law, since 1959.



E. K. Powe, A.B., J.D., Adjunct Professor of Law

A.B. 1948, J.D. 1950, University of North Carolina. Military Service, 1942-1946; Representative, North Carolina General Assembly, 1955-1957; member, North Carolina General Statutes Commission, 1956-1960; member, The Fourteenth Judicial District Bar, President, 1969-1970; member, The North Carolina and American Bar Associations; member, North Carolina State Bar, Councilor, since 1970; member, American Judicature Society. Adjunct Professor of Law, Duke University, since 1972.



A. Kenneth Pye, B.A., J.D., LL.M., Professor of Law and Dean

B.A. 1951, University of Buffalo; J.D. 1953, LL.M. 1955, Georgetown University. Military Service, 1953-1955; Professor of Law, Georgetown University, 1955-1966, Associate Dean, 1961-1966; Visiting Professor of Law, Johann Wolfgang Goethe University, Germany, summer, 1959; Visiting Professor of Law, Duke University, spring, 1965; Visiting Professor of Law, University of North Carolina, spring, 1968; Visiting Professor of Law, Banaras Hindu University, India, 1966-1967; Visiting Professor of Law, Loyola University, Los Angeles, summer, 1972; Program Specialist in Legal Education, The Ford Foundation (India), 1966-1967; Associate Director, A.A.L.S. Orientation Program in American Law, summer, 1965, Director, 1967-1968. Professor of Law, Duke University, since 1966; Dean, School of Law, 1968-1970; Chancellor of Duke University, 1970-1971; University Counsel, 1971-1974; Dean, since 1973.



Frank T. Read, B.S., J.D., Professor of Law

B.S. 1960, Brigham Young University; J.D. 1963, Duke University. Private practice, 1963-1965; corporate practice, 1965-1968; Visiting Professor of Law, University of North Carolina, summer, 1973; Visiting Professor of Law, Southern Methodist University, summer, 1974; Visiting Professor of Law, Brigham Young University, summer, 1974. Assistant Dean and Assistant Professor of Law, Duke University, 1968-1970; Associate Professor of Law and Assistant Dean, 1970-1972; Professor of Law and Associate Dean, 1972-1973; Professor of Law, since 1973.



William Arneill Reppy, Jr., A.B., J.D., Associate Professor of Law

A.B. 1963, J.D. 1966, Stanford University. Law Clerk, The Honorable Raymond E. Peters, Supreme Court of California, 1966-1967; Law Clerk, The Honorable William O. Douglas, United States Supreme Court, 1967-1968; private practice, 1968-1971; Visiting Assistant Professor of Law, University of Michigan, summer, 1973. Assistant Professor of Law, Duke University, 1971-1973; Associate Professor of Law, since 1973.



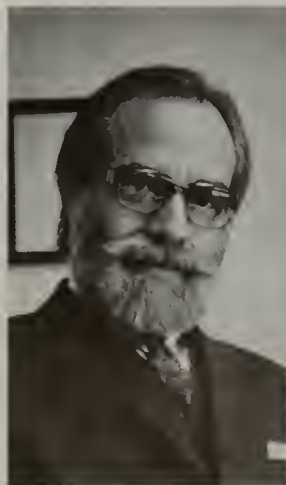
Cynia B. Shimm, A.B., M.D., Visiting Assistant Clinical Professor of Psychiatry.

A.B. 1946, Cornell University; M.D. 1950, Yale University. Diplomate, American Board of Psychiatry and Neurology (Psychiatry); private practice of psychiatry, since 1968; Assistant Instructor, University of North Carolina-Duke University Psychoanalytic Institute, since 1971. Visiting Assistant Clinical Professor of Psychiatry, Duke Medical Center and Duke Law School, since 1974.



Melvin G. Shimm, A.B., LL.B., Professor of Law, Chairman of the Editorial Committee, Law and Contemporary Problems, and Faculty Adviser, Duke Law Journal and Legal Research Program

A.B. 1947, Columbia University; LL.B. 1950, Yale University. Second Lt. FA (AUS), 1943-1946; general practice, 1950-1951; Counsel, Wage Stabilization Board, 1951-1952; Bigelow Fellow, University of Chicago Law School, 1952-1953; Editor, *Law and Contemporary Problems*, 1955-1961; Editor, *Journal of Legal Education*, 1955-1963; American Editor, *Journal of Business Law*, 1955-1961; Visiting Associate Professor of Law, New York University, summer, 1957; Visiting Professor of Law, University of Southern California, summer, 1965; Visiting Professor of Law, University of North Carolina, spring, 1970; Visiting Professor of Law, University of Michigan, spring, 1973; faculty, A.A.L.S. Orientation Program in American Law, summer, 1966, Director, 1968-1970; Senior Legal Consultant, The Brookings Institution, 1965-1968. Assistant Professor of Law, Duke University, 1953-1956; Associate Professor of Law, 1956-1959; Professor of Law, since 1959.



Bertel M. Sparks, B.S., LL.B., LL.M., S.J.D., Professor of Law

B.S. 1938, Eastern Kentucky University; LL.B. 1948, University of Kentucky; LL.M. 1949, S.J.D. 1955, University of Michigan. Special Agent, U.S. Army Counterintelligence Corps, 1941-1945; Instructor in Law, New York University, 1949-1950, Assistant Professor of Law, 1950-1952, Associate Professor of Law, 1952-1954; Professor of Law, 1954-1967; Visiting Professor of Law, University of Michigan, summer, 1956; Visiting Professor of Law, University of Kentucky, summer, 1957. Visiting Professor of Law, Duke University, 1966-1967; Professor of Law, since 1967.



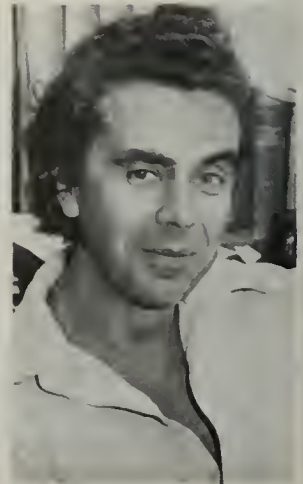
Otto G. Stolz, B.S., LL.B., Associate Professor of Law

B.S. 1963, Stevens Institute of Technology; LL.B. 1966, University of Virginia Law School; Editorial Board, Virginia Law Review; diplomate, L'Institut des Hautes Etudes International, Geneva, Switzerland. Harriman Fellow, 1966-1967; private practice, 1968-1971; Special Counsel to the Undersecretary of the Treasury, 1971-1972; Consultant, U.S. Departments of Treasury and Housing and Urban Development. Associate Professor, Duke University, since 1972.



William W. Van Alstyne, B.A., J.D., Professor of Law

B.A. 1955, University of Southern California; J.D. 1958, Stanford University; Certificate, Hague Academy of International Law, 1961. California Department of Justice, 1958; U.S. Department of Justice, 1958-1959; Assistant Professor, Ohio State University College of Law, 1959-1961, Associate Professor, 1961-1964, Professor, 1964-1965; Visiting Associate Professor of Law, Duke University, spring semester, 1964; Visiting Associate Professor of Law, U.C.L.A., summer, 1964; Senior Fellow, Yale Law School, 1964-1965; faculty, Orientation Program in American Law, Princeton University, summer, 1967; Visiting Professor of Law, University of Mississippi, summer, 1968; Visiting Professor of Law, Stanford University, spring, 1969, Visiting Professor of Law, University of Denver Law Center, summer, 1969; Visiting Professor of Law, University of Pennsylvania, spring, 1973; ACLU National Board of Directors, since 1970. Professor of Law, Duke University, since 1965.



James C. Wallace, B.S., B.A., J.D., M.A., M.S.P.H., Visiting Professor of Law

B.S. 1944, B.A., J.D., 1947, M.A. 1957, M.S.P.H. 1974, University of North Carolina. Lecturer in History, Duke University, 1962-1963, Instructor in History, 1963-1964; Assistant Professor of Social Studies, North Carolina State University, 1964-1967, Associate Professor of Social Studies, 1967-1970, Associate Professor of University Studies, 1970-1973, Professor of University Studies, since 1973; Visiting Professor of Law, University of North Carolina, fall, 1973. Visiting Professor of Law, Duke University, spring, 1974, spring, 1975.



Alvin C. Warren, Jr., B.A., J.D., Associate Professor of Law

B.A. 1966, Yale University; J.D. 1969, University of Chicago. Assistant Professor of Law, University of Connecticut, 1969-1972; Associate Professor of Law, 1972-1973; Editor, *Law and Contemporary Problems*, 1973-1974; Visiting Associate Professor of Law, University of Pennsylvania, 1974-1975. Associate Professor of Law, Duke University, since 1973; on leave, 1974-1975.



John C. Weistart, A.B., J.D., Professor of Law

A.B. 1965, Illinois Wesleyan University; J.D. 1968, Duke University. Law Clerk to The Honorable Walter V. Schaefer, Supreme Court of Illinois, 1968-1969; Editor, *Law and Contemporary Problems*, 1970-1973; Visiting Professor of Law, U.C.L.A., spring, 1974. Associate Professor of Law, Duke University, 1972-1973; Professor of Law, since 1973.



Emeriti

W. Bryan Bolich, A.B., B.A. (Juris), M.A., B.C.L., *Professor Emeritus of Law*

A.B. 1917, Duke University, Duke University Law School, 1919-1921; B.A. (Juris) 1923, B.C.L. 1924, M.A. 1928, Oxford University. General practice, 1924-1927; member, North Carolina House of Representatives, 1927; Legal Attache, American Embassy, Rome, 1950; Visiting Professor of Law, University of North Carolina, summer, 1951, 1955; Visiting Professor of Law, University of Houston, spring semester, 1957. Professor of Law, Duke University, 1927-1966; Professor Emeritus of Law, since 1966.

John S. Bradway, A.B., A.M., LL.B., LL.D., *Professor Emeritus of Law*

A.B. 1911, A.M. 1915, LL.D. 1957, Haverford College; LL.B. 1914, University of Pennsylvania. General practice, 1914-1929; Legal Aid Society of Philadelphia, 1914-1920; Chief Counsel, Philadelphia Legal Aid Bureau, 1920-1922; Secretary, National Association of Legal Aid Organizations, 1923-1940, President, 1940-1942; Visiting Professor of Law and Director of the Legal Aid Clinic, University of Southern California, summer, 1928; Professor of Law and Director of the Legal Aid Clinic, University of Southern California, 1929-1931; Vice-President, North Carolina Bar Association, 1945-1946; Visiting Professor, University of North Carolina School of Social Work, 1949-1959. Professor of Law and Director of the Legal Aid Clinic, Duke University, 1931-1959; Professor Emeritus of Law, since 1959.

Edwin C. Bryson, LL.B., *Professor Emeritus of Law*

University of North Carolina, 1922-1925; Duke University, 1932-1933; LL.B., 1937, University of Oregon. General practice, 1927-1930. Assistant to Duke University Legal Aid Clinic, 1931-1947; Duke University Counsel, 1945-1971; Associate Professor of Law, 1947-1954; Professor of Law, 1954-1971; Professor Emeritus of Law, since 1971.

Elvin R. Latty, B.S., J.D., J.Sc.D., *William R. Perkins Professor of Law Emeritus and Dean Emeritus*

B.S. 1923, Bowdoin College; J.D. 1930, University of Michigan; J.Sc.D. 1936, Columbia University. Instructor in Romance Languages, University of Vermont, 1923-1927; general practice, 1930-1933; Special Fellow, Columbia University, 1933-1934; Associate Professor of Law, University of Kansas, 1934-1935; Professor of Law, University of Missouri, 1935-1937; Visiting Professor of Law, George Washington University, summer, 1937; Visiting Professor of Law, Stanford University, summer, 1938; Visiting Professor of Law, University of North Carolina, summer, 1942, 1947, 1949, 1956; Visiting Professor of Law, University of Texas, summer, 1951; Visiting Professor of Law, University of Puerto Rico, spring, 1968; Visiting Professor of Law, University of Florida, summer, 1970; Fulbright lecturer, University of Pavia, Italy, 1954; Special Assistant to the American Ambassador, Caracas, 1942-1943; Acting Assistant Chief, Foreign Funds Control Division, United States Department of State, 1943. Professor of Law, Duke University, since 1937; Dean, School of Law, 1958-1966; William R. Perkins Professor of Law Emeritus and Dean Emeritus, since 1973.



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John W. Halderman

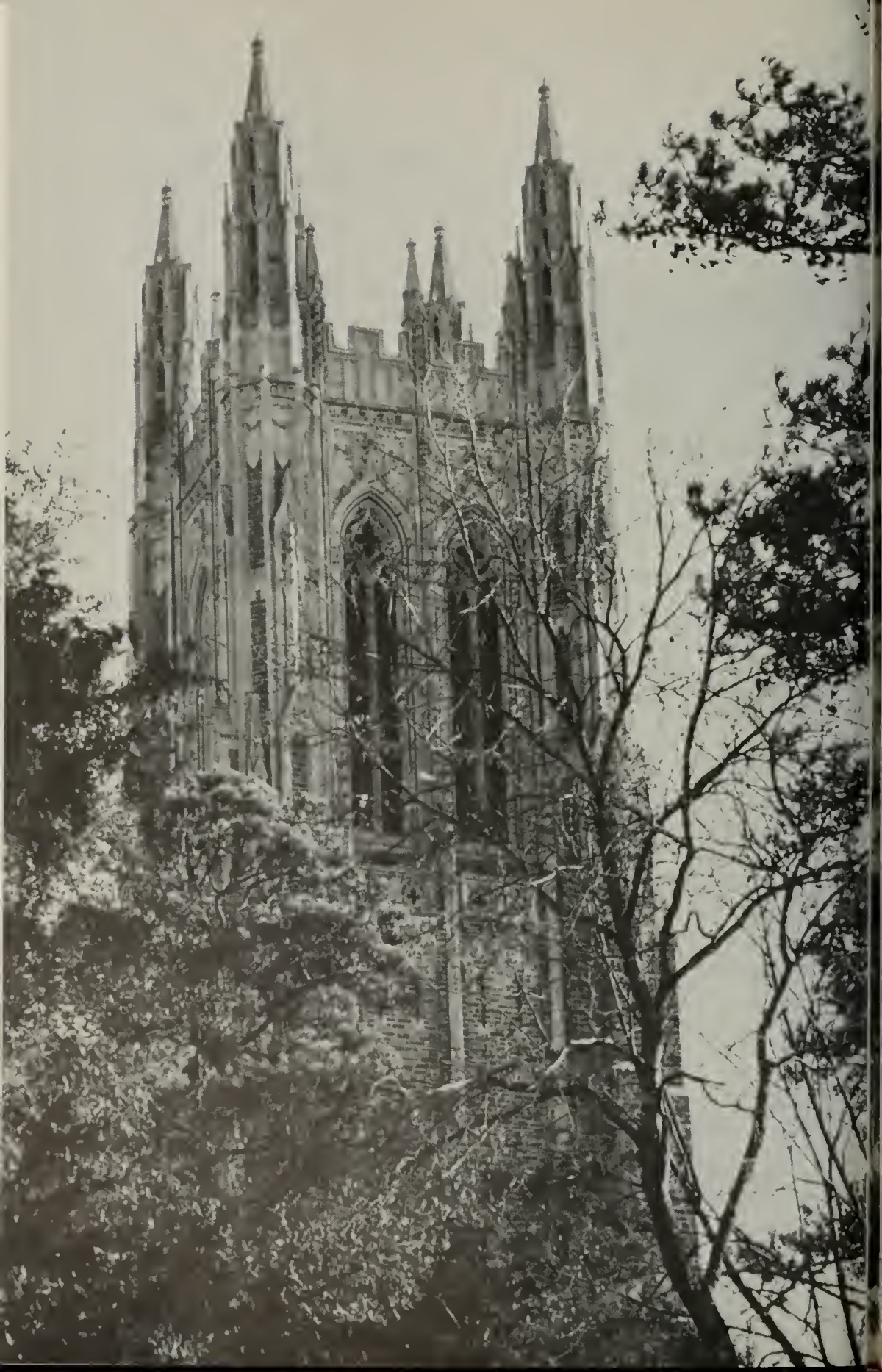
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1

General Information

History

Union Institute, founded in 1838, later became Trinity College, which in turn formed the nucleus around which Duke University developed. The teaching of law as part of a cultural education began at Duke in 1850 and as part of a professional education in 1868 with the establishment of the Department of Law of Trinity College.

The School of Law of Trinity College was founded in 1904. Samuel Fox Mordecai organized the School and was its Dean until his death in 1927. The School of Law's establishment set a new standard in Southern legal education. Duke was the first Southern law school to require college work as preliminary to the study of law. The completion of two years of college work was an entrance requirement. The case method was used as the basis of instruction and the completion of three years of resident study was required for the LL.B. degree.

In 1924, James B. Duke established The Duke Endowment, and Duke University came into being. The ideas of the founder with reference to the University and its training of lawyers were expressed in the Indenture establishing The Duke Endowment:

I have selected Duke University as one of the principal objects of this trust because I recognize that education, when conducted along sane and practical, as opposed to dogmatic and theoretical lines, is, next to religion, the greatest civilizing influence. I request that this institution secure for its officers, trustees, and faculty men of such outstanding character, ability and vision as will insure its attaining and maintaining a place of real leadership in the educational world, and that great care and discrimination be exercised in admitting as students only those whose previous record shows a character, determination and application evincing a wholesome and real ambition for life. And I advise that the courses at this institution be arranged, first, with special reference to the training of preachers, teachers, lawyers and physicians, because these are most in the public eye, and by precept and example can do most to uplift mankind. . . .

During its early years the Law School expanded from twenty-five students and three professors in 1924-1925 to fifty-five students and five professors in 1929-1930. During the 1930s, enrollment stabilized at about one hundred students with thirteen faculty members until 1941 when World War II caused a dramatic drop.

During the 1930s, the Duke Law School was reorganized and the curriculum and professional activities were broadened. Its objectives, the nature of its curriculum and resources, and the quality and states of origin of its students and faculty distinguished it as a national law school.

Since World War II the Law School has been characterized by a distinguished faculty, an outstanding student body, and a broad curriculum. A new building, completed in 1962, has provided needed library and classroom space.

Throughout its history the Law School has emphasized quality rather than quantity in its student body. Each fall it now admits approximately 150 students selected from nearly three thousand applicants.

The Duke Law School is approved by the American Bar Association and is a member of the Association of American Law Schools.

Nature of the School

The nature and character of a school are determined by the people who compose it, their aims and methods, and the extent to which they achieve their objectives.

The Faculty. The members of the faculty are varied in outlook, in philosophy, and in political views. Their different backgrounds, ages, and range of experience serve to provide a balanced perspective and to ensure that the Law School will continue to develop as a dynamic yet stable institution.

The primary goal of the faculty is to train students to become effective lawyers. Their common concern is to aid students to realize their potential, not only as lawyers but as individuals and as useful citizens in a complex and changing society. The faculty seeks to make legal education at Duke a cooperative venture between students and professors. One of the traditions of the Law School is to foster rapport between faculty and students. The present student-faculty ratio at Duke is less than twenty to one, which is one of its greatest assets. The welfare of each student enrolled in the Law School is important to the faculty.

The Students. Students at Duke come from colleges and universities throughout the United States creating a diverse student body with varied backgrounds and interests. They have achieved outstanding undergraduate records before beginning their study of law at Duke.

Minority-group students, women, and veterans are especially encouraged to apply for admission.

Purposes

The primary goals of the Duke Law School are instruction, research, and public service. The primary instructional purpose of the School is to educate its graduates to perform the roles that lawyers perform, and will perform, in our society. The aims of the School set forth in the early 1900s still remain.

The Duke Law School strives to give such training in the fundamental principles of law as is necessary to a right and successful practice of the profession in the commonwealths of this nation; to awaken in young students of law faith in, and admiration for, the profession; to



develop in them a lively sense of honor and justice; and to fit them in moral character for the delicate duties which belong to this ancient and noble profession.

The profession of law affords varied careers, and Duke Law School provides thorough preparation for specialization in any branch of the law. A number of Law School graduates have chosen to work in private practices in large firms and small, metropolitan centers and small towns, representing clients—wealthy and poor, corporate and individual, public and private. Other graduates have selected public service careers, advising and representing governmental agencies at federal, state, and local levels. Many of the highest elected and appointed executive positions in American government have been filled by Duke Law School graduates. Duke Law School graduates are not, however, confined to private practice or government; some have excelled in business, education, and in other fields.

American law has expanded and changed at a rapid pace in this century, and the rate of change will not diminish. Law careers in the future promise to be even more varied. As the national scene changes the Law School, too, will change, in order to educate lawyers able to structure the legal institutions of the future.

Methods

A law school of Duke's size is particularly well-adapted to teaching by the case method. This involves the teaching of actual and hypothetical cases by Socratic discussion between students and instructors. Most first year courses are taught by this method. Each first year student has at least one small section in which additional skills are taught and classroom participation is routine.

The Law School seeks to have the student acquire knowledge and comprehension not only of legal doctrine, but also of judicial process and of the social, economic, and political problems with which law and lawyers must deal. The method of instruction employed compels analysis of judicial opinions and inquiry into the nonlegal as well as the legal considerations which underlie them. In appropriate courses, special consideration is given to the work of legislative and administrative agencies of government. In recognition of the increasing importance of the role of the lawyer in representing private interests before government agencies and in government service, a broad program is offered in the public law field. Opportunity for creative student work is provided by seminar courses and supervised individual study and research. Courses and seminars dealing with consumer protection, race relations, urban problems, criminal procedure, land use planning, and the environment bring the student into contact with major problems facing the country today.

A carefully integrated series of courses is designed to give students actual experience in the work of lawyers. Legal research and writing, moot court work, and procedure in the first year are followed in the second and third years by courses, seminars, and co-curricular activities emphasizing trial techniques, legal planning and drafting, professional responsibility, and the development of skills and approaches. A student bar association affords a means whereby the student may become acquainted with the professional organizations through which a lawyer may and should contribute to the well-being of his profession.

Resources for Study

The Law Building. The present Law School building was completed and occupied in September, 1962. Located just off the Gothic core of the West Campus, the building is of modified Georgian architecture. It reflects a notable characteristic of the School—a high ratio of facilities to students admitted. Despite long-range plans to keep the student body moderate in size, the general spaciousness, number of classrooms and seminar rooms, seating capacity in the Library reading room, library stack spaces, student carrels, student lockers, student lounge areas, faculty offices, quarters for legal publications, special quarters for institutional studies, and the courtroom are of proportions ordinarily associated with a far larger student body. The building consists of a classroom wing and a library and administrative wing, with faculty offices and student activities in both areas.

Law Library. Students who decide to dedicate their careers to the study and practice of law should be aware that many working hours throughout their careers will be spent in law libraries. There they will study and research relevant points of law, write briefs and memoranda, draft pleadings and documents, prepare legal arguments, and do most of their professional thinking.

Modern legal research is a formidable task requiring knowledge of legal literature and a trained aptitude in its application. It is for this reason that law libraries perform such an important function in the process of legal education. In addition to being repositories of legal materials, they are the testing grounds for the intensive and highly competitive training of law students.

The Law Library of Duke University is designed for the express purpose of lending optimum support to the advancement of an outstanding legal education. Through a careful application of its many facilities, including one of the largest collections of legal materials in the United States, the library encourages every student to make full use of its resources for study requirements as well as independent research.

The efforts of the Law Library to provide maximum service are reflected in the long hours of daily operation, accessible stack areas, a continuous reference service, and maintenance of an excellent reserve collection. Space within the library is sufficient to accommodate the entire student body at one time.

During the last fifty years, the Law Library collection has grown from less than 4,000 to more than 188,000 volumes, in addition to large numbers of pamphlets, documents, and microfilm materials. Work is in progress to expand both the size and nature of the collection.

The main core of the collection consists of substantially all reported decisions of the federal, state, and territorial courts of the United States, and the courts of Great Britain and other Commonwealth countries. It includes also the constitutions, codes, statutes, and subsidiary legislative publications of all of these jurisdictions, as well as many digests, indices, bibliographies, and other research tools for effective research into every legal system in the English language. A large section of the library collection is devoted to treatises on all phases of law and legal science, supplemented by works in the fields of history, economics, government, and other social and behavioral sciences relevant to legal research. There are special collections in foreign law, international law, and international business law. Selected documents and pamphlet materials are





kept on file. The library maintains complete subscriptions to all current legal periodicals of general interest printed in the English language, many nonlegal periodicals, and most major legal periodicals published in foreign languages.

The Law Library is supplemented by the Perkins Library with its general collection of over two million volumes, including works on law and related subjects, and its special collection of domestic and international documents.

The Law Library is an autonomous unit of the University library system, whose administrators are directly responsible to the Dean of the Law School. It is staffed by the Law Librarian, a member of the faculty, who is assisted by a staff of specialists.

The Rule of Law Research Center. In the fall of 1958, the Duke Law School established its Rule of Law Research Center, with Professor Arthur Larson as its Director.

The center's principal activity during the sixties was research and publication on questions of law and international organization bearing on security, peace, disarmament, and world order. More recently, its efforts have concentrated on race relations.

Facilities for the Handicapped. Duke Law School has anticipated many difficulties which might impede the work of otherwise qualified handicapped law students. Special parking spaces immediately in front of the Law School can be arranged. Inside and outside ramps have been constructed to facilitate access by students in wheelchairs. In addition, there is an elevator in the building. Blind students are guided between classes by voluntary student guides. The Duke Law Dames have in the past volunteered to read to blind students. Similar provisions will be made, as necessary, for other handicapped students admitted to the Law School.

Publications

Law and Contemporary Problems. For forty-one years the Law School has published the faculty-edited quarterly, *Law and Contemporary Problems*. The journal is distinctive among professional legal publications in both its format and content. Each issue is devoted to a symposium on a particular topic of contemporary interest. These topics are approached from an interdisciplinary perspective with contributions by legal scholars, economists, social scientists, and public officials. Recent symposia have dealt with such diverse topics as Judicial Ethics, Health Care, Police Practices, Expansion of the Common Market, and Athletics. In the near future, symposia will be devoted to such topics as Trade with China, School Finance, Occupational Safety, Social Science Data in Litigation, and Tax-Exempt Organizations.

The quarterly, presently under the editorial direction of an interdisciplinary faculty committee, is widely distributed and its subscribers include general university libraries, governmental agencies, and foreign educational institutions as well as the more traditional law libraries and law firms. Through an arrangement with Oceana Publications, Inc., selected issues of the journal are reprinted in hard cover as part of a series known as the *Library of Law and Contemporary Problems*. Students at the Law School are employed as editorial assistants.

Duke Law Journal. The *Duke Law Journal*, edited entirely by a board of student editors, carries forward the American tradition of student-managed legal publications. The *Journal* is published in six issues each year and offers scholarly articles by distinguished members of the profession, as well as notes and comments written by upperclassmen. One issue is devoted to new developments in the area of Federal Administrative Law. The second year staff is selected from students who either demonstrate academic excellence in their first year courses or participate in the Contributor program in which second year students can demonstrate exceptional writing skills. Members of the Editorial Board and Executive Committee are selected from the second year staff by vote of all *Journal* personnel.

Corporate Practice Commentator. The *Corporate Practice Commentator*, a quarterly periodical devoted to significant developments and new thinking in the field of corporation law and practice, published by a commercial concern, is edited at Duke by Professor F. Hodge O'Neal. The *Commentator* gives attention to matters of interest and importance to counselors and managers of corporate and other business enterprises, with articles on corporation law and practice, securities regulation, tax problems, antitrust questions, labor matters, patents and copyrights, executive's compensation, fair trade legislation, and other matters arising from business activities. Special consideration is given to trends in business practices and to new business problems.



2

Program Information

Juris Doctor Degree

Upon favorable recommendation of the faculty, the degree of Juris Doctor (J.D.) will be conferred upon students who have successfully completed six semesters of law study. Two semesters of law study undertaken at another accredited American law school may be counted toward the required total if the final two semesters (exclusive of a summer session) and a minimum of 54 semester hours of law study are undertaken at Duke.

A student shall be deemed to have successfully completed six semesters of law study if during a minimum of 90 academic weeks he has completed the following requirements:

1. A passing grade in courses aggregating 84 semester hours;
2. A grade not requiring repetition in every required course; and
3. A quality point average of at least 1.80 on a 4.0 scale.

Bachelor of Laws Degree

Upon favorable recommendation of the faculty, the degree of Bachelor of Laws (LL.B.) will be conferred upon students who shall have successfully completed all of the requirements listed above as necessary for the Juris Doctor degree but who do not possess a baccalaureate degree prior to completion of the program of study for the Juris Doctor degree.

Joint Degrees

Combined Medical-Law Degree. The School of Medicine and the School of Law of Duke University have established jointly a unique program of combined medical and legal education. The aim of the program is to provide a small number of selected individuals with the opportunity to acquire an education in both medicine and law during a six-year course of closely integrated study in

the two fields. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.D. and the J.D. degrees.

The student in the M.D.-J.D. program begins his six-year course of study in the School of Medicine. As in the regular M.D. program, his first-year is devoted to the basic medical sciences and the second year to the basic clinical disciplines. At this point the student enters the School of Law, where his first year curriculum is the same as that of other law students. During the next two years he selects courses in the Law School which are of special application to his medical-legal interest, and his sixth and final year is spent in elective clinical work in the Medical School, which may also be tailored to his specialized needs. In addition, the student will be required to complete additional elective basic science work amounting to 18 semester hours, or two summer sessions. His other summers will be unscheduled, but opportunities will be presented to enable the student to engage in medical-legal endeavors suited to his developing interests. Throughout the six-year program the student will have available to him the counsel of faculty members of the two schools to help him in the selection of courses and in the definition of his career objectives.

Combined Master of Business Administration-Law Degree. The School of Law and the Graduate School of Business Administration of Duke University have established a combined program of studies in law and graduate level business administration. The aim of the program is to provide a small number of selected individuals with the opportunity to acquire an education in both law and business administration in a four year course of closely integrated study in the two fields. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.B.A. and the J.D. degrees.

The student in the M.B.A.-J.D. program will begin his first year course of study in either the Graduate School of Business or the School of Law. If the student begins in the Law School, his first year curriculum will be the same as that of other law students; if he begins in the Graduate School of Business Administration, his first year curriculum will be the same as that of other graduate business students. The student's second year will consist of taking the full first year program of the other school. In the third and fourth years of the program the student will take a mix of courses in the two schools. Throughout the four year program, the student will have available to him the counsel of faculty members of the two schools to help him in the selection of courses and the definition of his career objectives.

Combined Master of Arts in Public Policy Sciences-Law Degree. The joint degree program in law and public policy sciences provides an opportunity for students to acquire decision-making skills and substantive policy knowledge which would be useful in either career or citizen roles dealing with problems of the public sector. The combined program requires four academic years and one internship summer to complete, of which the first academic year is spent exclusively in the Law School, the second exclusively in the Institute of Policy Sciences, and the third and fourth years mainly in the Law School, but with one public policy sciences course each semester.

To succeed in the program, a student must have ability to learn how to use numbers in analyzing public policy problems. No specific quantitative background is required, although students who have taken calculus, advanced statistics courses, and advanced economics courses will have a considerable advantage.

In addition to the required methods and theory courses, a joint degree candidate must select a substantive policy area in which to concentrate.

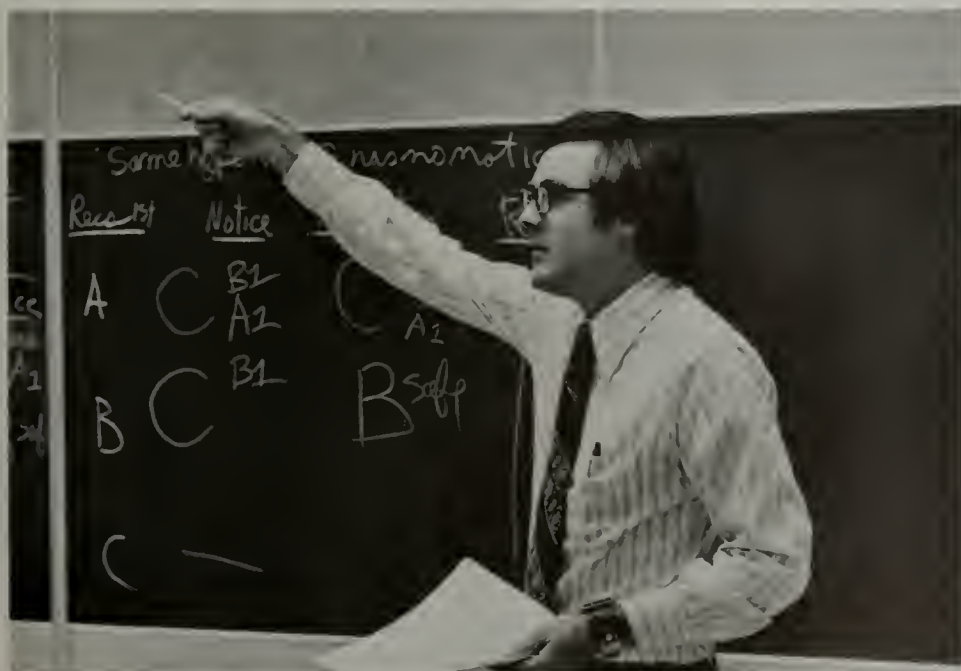
Such concentrations are available in the following fields at the present time: the Administration of Justice, Communications Policy, Health Policy, and Educational Policy. Course descriptions of some courses appear on page 52.

Combined Master of Health Administration-Law Degree. The School of Law and the Department of Health Administration of Duke University have established a combined degree in law and health administration.

The student in the M.H.A.-J.D. program will spend his first two years in the School of Law. He will then spend one year and one summer in the M.H.A. program, returning to the School of Law for his final year. Two courses in the Law School curriculum will be designated by the Department of Health Administration as electives to be counted toward their degree. The student will complete eighty-four hours of credit in the Law School.

Graduate Study in Law

The Law faculty has the authority to recommend that the University confer three separate graduate degrees: the degree of Master of Laws (LL.M.), the degree of Master of Comparative Law (M.C.L.), and the degree of Doctor of Juridical Science (S.J.D.). The number of candidates accepted for study in any of these degree programs is extremely limited. No systematic or formal program of graduate instruction exists at Duke Law School. An applicant will be accepted for graduate study only if a faculty member indicates willingness to supervise the work of the student; if the student does not require financial assistance; and if the student has achieved a superior academic record in his undergraduate law studies. The course load, the program of instruction, and all other requirements for the degree will be determined by the Dean and the involved faculty member, subject to the approval of the entire faculty. Any candidate interested in obtaining one of the three graduate degrees of law at Duke should have formulated a specific research project prior to applying.





3

Admissions

General Information

The admissions process for the typical law school applicant is at best time-consuming and lengthy, occasionally creating severe anxiety. The Admissions Committee is aware of the difficulties and uncertainties faced by applicants. Consequently, it is our goal to treat each applicant with fairness and with candor. The following description of the admissions process at Duke is presented with that object in mind.

At Duke, as at most law schools, the two most important admission criteria are the undergraduate grade point average (GPA) and the Law School Admission Test (LSAT) score. Every two years validity studies are conducted by Educational Testing Service to review the predictive value of these two criteria at Duke Law School. More specific statistical studies concerning a variety of admissions topics are constantly underway in our own Admissions Office at Duke. An admissions decision is, however, a far more complex process than merely rank-ordering applicants by an index number based on a numerical formula derived from the LSAT and the GPA. First, the applicant's GPA is interpreted by carefully evaluating his or her transcript and judgments are made regarding the strength of the curriculum, the quality of the undergraduate institution, class rank, the major, and the progression of grades. Furthermore, while reliance on purely academic criteria is appropriate in making many decisions, particularly those involving candidates either clearly admissible or clearly inadmissible, other more subjective factors can become quite important in close cases. Proven capacity for leadership, dedication to community service, excellence in a particular field, motivation, graduate study in another discipline, work experience, and extracurricular activities all receive careful consideration in appropriate cases. Duke does have a faculty initiated affirmative action plan for minority admissions; special care is taken in evaluating applications from members of minority groups who traditionally have not been well represented in the legal profession. Furthermore, as a small law school with a broadly based national reputation, Duke makes a conscious effort in the

admissions process to create in each entering class a broad diversity in general background, geography, and undergraduate institutions represented. In an entering class of approximately 150 to 170 students, each student admitted is selected not only for his or her marked potential for academic success but also frequently because application materials indicate that he or she can bring to Duke unique personal qualities or talents that will enhance the "mix" provided by the entering class.

For both more detailed and more general information on law school admission, prospective applicants are advised to consult the most current issue of the *Prelaw Handbook*, published annually in October by the Law School Admission Council and the Association of American Law Schools. It includes material on the law and lawyers, the study of law, prelaw preparation, applying to law school, a complete Law School Admission Test, together with individualized information on most American law schools. Each year the Duke Law School provides an accurate profile of the credentials of its last entering class for publication in the *Prelaw Handbook*. Close examination of the Duke statistical profile contained in the latest edition of the *Prelaw Handbook* indicates that while an applicant's LSAT and GPA are quite significant and can in some cases predict admission or rejection, in many cases they are far from being exclusive criteria. Admissions is not, and the Law Faculty believes it should not be, a purely mechanical process. The *Prelaw Handbook* may be obtained at college bookstores or ordered from Educational Testing Service, Box 944, Princeton, New Jersey 08540.

The Admissions Committee at Duke receives its authority by delegation from the Law faculty and it reports to the Law faculty. The Admissions Committee, composed of four law professors and three law students, decides all policy questions arising in the admissions process. Some individual files involving close decisions or individual problems are reviewed by the four faculty members on the Committee. Student members of the Committee participate in all policy decisions but do not review individual files. The Admissions Office at Duke is under the direction of the Assistant Dean. The Assistant Dean and supporting staff administer the policy decisions adopted by the Admissions Committee. All admissions files are treated confidentially; material in the files is available only to personnel in the Admissions Office and members of the Law faculty.

Duke has no formal deadline for the submission of applications. However, it is strongly recommended that applications be filed between September 1 and January 1. An applicant ordinarily will receive an answer no later than March 15 if his application has been completed before February 1. No applicant who receives an offer of admission will be required to make a final decision on the offer prior to April 1. Applications completed after February 1, or deferred from the first decision period, will receive notification of action no later than May 15. Only in rare cases will offers be extended prior to March 1 or after May 15. After May 15 a waiting list is normally established and the list is held open until a few days prior to fall semester registration; offers are extended to waiting-list files only as withdrawals occur from the paid-depositor list.

Juris Doctor Degree

First year students may enter only at the beginning of the fall semester. Students who have completed the first year of law study at this or any other law school approved by the Association of American Law Schools may enter at the beginning of any semester. Duke Law School is a full-time day school only; no part-time study is available.

An application for admission to Duke Law School as a candidate for the degree of Juris Doctor may be submitted by any person who is a graduate of an approved college. Applicants will be considered without regard to sex, race, creed, religion, or national origin.

Combined Course Program

Arrangements with several colleges permit outstanding students who have completed three years of undergraduate work to enter the Duke Law School. Upon the satisfactory completion of the first year of law school, the student receives a Bachelor of Arts degree. Interested students should determine whether their college participates in this program.

An undergraduate student at Duke University who has completed three years of study and whose entire college record shows exceptional academic achievement may apply to the college in which he is enrolled for permission to participate in a combined course program wherein his first year of law study is credited toward the completion of requirements for the undergraduate degree. After receiving the undergraduate degree and the successful completion of four additional semesters of law study, a student in the combined course program will receive the degree of Juris Doctor (J.D.).

Less than 5 percent of an entering class is admitted before receiving the baccalaureate degree. Students considering entrance before obtaining this degree should consult the rules of the Board of Bar Examiners in the state in which they plan to practice law for regulations applicable to this program.

Bachelor of Laws Degree

Applications may be submitted by a candidate without a prior baccalaureate degree if he has completed in a college of approved standing work equivalent in number of units to three-fourths of that required for graduation and whose entire college record shows exceptional academic achievement. Graduates who have been admitted under this provision will be candidates for the degree of Bachelor of Laws (LL.B.).

Advanced Standing

Any person who has complied with the requirements for admission set forth in this *Bulletin* prior to the commencement of his law study, who presents evidence of the satisfactory completion of one year of study at any law school which is a member of the Association of American Law Schools, and who is eligible for readmission to the law school from which he proposes to transfer, may apply for admission with advanced standing, subject to such rules as are applicable to students in this School having a comparable scholastic record. Provisional credit for courses so completed will be given, with final credit contingent upon the completion of at least two academic years of law study at Duke Law School with satisfactory grades. Adjustment of credit for work done in other law schools may be made by the Dean or by vote of the faculty.

Joint Degree Programs

M.D.-J.D. Program. Applicants for the M.D.-J.D. program must qualify for admission to both the School of Medicine and the School of Law. In addition, they must apply specifically for admission to the M.D.-J.D. program. Applications will be passed upon by the Joint Law-Medicine Committee, which is com-

posed of faculty members from the two schools. Personal interviews will be required of all applicants.

Because of the special intellectual demands involved in mastering two professions, exceptionally high standards will be applied in admitting students. Students will be evaluated also on the basis of motivation, demonstrated interest, and likely achievement in fields relevant to the program's concerns.

In view of the highly specialized character of the field, it is anticipated that enrollment in the program will be limited. Probably no more than three will be accepted in any one year. For information on Medical School Admissions, the prospective applicant should write the Admissions Office, Duke University Medical School, P.O. Box 2901, Durham, North Carolina 27710.

M.B.A.-J.D. Program. Applicants for the M.B.A.-J.D. program must qualify for admission to both the Graduate School of Business Administration and the School of Law. In addition, they must apply specifically for admission to the M.B.A.-J.D. program. It is anticipated that enrollment in the program will be limited. For information on the Graduate School of Business Administration, the prospective applicant should write Admissions Office, 127 Social Science Building, Graduate School of Business Administration, Duke Station, Durham, North Carolina 27706.

M.P.P.S.-J.D. Program. Applicants for the M.P.P.S.-J.D. program must qualify for admission to both the Institute of Policy Sciences and Public Affairs and the School of Law. Also, the applicant must specify on each application that he is applying for the M.P.P.S.-J.D. program. It is anticipated that enrollment in the program will be limited. For information on the Institute of Policy Sciences and Public Affairs, the prospective student should write the Institute of Policy Sciences and Public Affairs, Box 4875, Duke Station, Durham, North Carolina 27706.

M.H.A.-J.D. Program. Applicants for the M.H.A.-J.D. program must qualify for admission to both the Department of Health Administration and the School of Law. For information on the Department of Health Administration, the prospective student should write the Department of Health Administration, Box 3018, Duke University Medical Center, Durham, North Carolina 27710.

Admission Procedures

Application must be made on the prescribed Law School forms which are available upon request. A fee of \$25.00 is charged for processing an application and a check or money order for this amount should accompany the application. This application fee is not waivable except in a case of extreme personal hardship. No application will be reviewed by the Admissions Committee and no application will be accepted until all required documents are on file. These documents are:

1. The application itself, to which a recent personal photograph must be attached.
2. Transcripts of all college and graduate academic records submitted through the Law School Data Assembly Service (LSDAS), Educational Testing Service, Box 944, Princeton, New Jersey 08540.
3. A report of the applicant's score on the Law School Admission Test (LSAT) administered by the Educational Testing Service. The LSAT is given periodically at examination centers conveniently located throughout the United States and at special foreign centers. Testing dates in the

summer and fall of the applicant's final year of undergraduate study are strongly preferred. LSAT scores that are no more than four years old will be considered valid. Application forms and information should be procured by writing directly to: Law School Admission Test, Educational Testing Service, Box 944, Princeton, New Jersey 08540.

4. Two completed reference forms, one of which should be written by an appropriate academic dean at the undergraduate school last attended. This should include a statement of the applicants rank in class. It is suggested that the other reference form be submitted by an instructor who has personal knowledge of the academic performance and potential of the applicant. References should be requested to return their forms directly to the Admissions Office, Duke University School of Law, Durham, North Carolina 27706.

Ordinarily, the Law School conditionally accepts or rejects an applicant on the basis of a transcript showing college work through the junior year. Final action is taken in the light of further supplemental transcripts showing all of the college work required for admission to the Law School. A conditionally accepted applicant has been rejected later on the basis of the completed transcript in only a few cases in the history of the School. Personal interviews are not required and usually have little effect on the admissions decision; however, a visit to the Law School and an interview will be arranged if requested by the applicant.

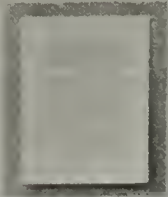
Each applicant extended an offer of admission will be given three calendar weeks to respond. In fairness to applicants who have also filed applications with other schools, Duke will in no event impose an earlier deadline than April 1 for response to offers. A deposit fee of \$100.00 must be paid at the time the applicant accepts an offer of admission. This deposit fee is nonrefundable and will be applied to the tuition charge for the first semester of law study.

Pass-Fail Transcripts

A special word of caution should be extended to applicants concerning undergraduate pass-fail courses. The Admissions Committee has had occasion in recent years to consider transcripts consisting of predominantly pass-fail grades. Only a minute percentage of those considered were admitted. It is fair to state that a student's chances of admission are inversely proportional to the percentage of such grades appearing on the transcript. The attention of applicants is invited to the discussion of pass-fail grades contained in the *Prelaw Handbook*.

ELECTIONS

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1941-1951 - 84 million
951 - later



4

Financial Information

Tuition

The cost of providing a legal education of the quality offered by the Duke Law School is high and has been steadily increasing. Tuition provides only a part of the funds necessary, with the remainder provided by income from endowment, grants, and from gift support of alumni and friends.

Tuition at Duke is due and payable not later than the day of registration for a particular semester. For the academic 1974-1975 year, tuition will be \$2,750.00 (\$1,375.00 per semester). Incoming students should be aware that tuition will probably rise annually during their course of study.

Tuition Refund Policy. Tuition refunds are governed by the following policy:

1. In the event of death or a call to active duty into the armed services, a full tuition refund is granted.
2. In all other cases of withdrawal, students or their parents may elect to have tuition charges refunded or carried forward as a credit for later study, according to the following schedule:
 - a. Withdrawal before the beginning of classes: full refund.
 - b. Withdrawal during the first or second week of classes: 80 percent.
 - c. Withdrawal during the third through fifth week: 60 percent.
 - d. Withdrawal during the sixth week: 20 percent.
 - e. No refunds after the sixth week.
 - f. Tuition or other charges paid from grants or loans will be restored to those funds, not refunded or carried forward.

General Expenses

Applicants should be aware that the following general expense estimates were compiled in the spring of 1974 and appropriate revisions may be necessary to reflect inflationary increases. It should also be recognized that the expenses

of a Duke law student may vary considerably according to the style of living assumed, variables such as travel distance and size of family, if any. With the above cautionary statements in mind, the following are the best estimates as to total living costs for a nine-month academic year: \$5,000 to \$5,600 for single students; \$6,200 to \$6,800 for married students; and \$6,800 to \$7,400 for married students with one child. Included in the above living cost estimates are present expense levels for tuition, lodging, board, books (\$170 to \$220 if purchased new), supplies, transportation, and personal effects. Applicants for loans and scholarships should expect that their proposed budget figures will be examined carefully with the hope that these figures fall in the lower ranges of the above estimated expenses.

Campus Housing

The Graduate Center is available to men and women enrolled in the Law School. Most rooms are doubles. The rental charge for a double room is \$393.00 for the academic year for each occupant (\$196.50 per semester for each occupant).

Men and women may also reside in the Town House Apartments which are complete with basic furnishings. Three males or three females occupy each apartment. The rental charge for the academic year is \$617.00 for each occupant (\$308.50 per semester). Utilities must be paid by the occupants.

A new 500-unit apartment complex, Central Campus Apartments, is under construction. A limited number of the units will be available for the 1974-1975 fall semester. The remaining units will be ready for occupancy in 1975. This complex will provide housing for married graduate and professional students, single undergraduate and graduate students, and single and married students in nondegree programs related to Allied Health.

For single students, efficiencies, one-bedroom, and two-bedroom apartments will be fully furnished. The apartments for married students will include a few furnished efficiencies and a number of one, two, and three-bedroom units in which the kitchen, living room, and first bedroom will be basically furnished. These apartments will be furnished and equipped to provide economy and convenience to eligible married students while allowing space for individual furniture and accessories. The rental fees are listed below:*

Married Students (Monthly Rate Without Phone)

Efficiency	\$140	Furnished
1 Bedroom	\$156	Unfurnished
1 Bedroom	\$169	Partially furnished
2 Bedroom	\$211	Partially furnished
3 Bedroom	\$233	Partially furnished

Single Students (Academic Year Without Phone)

Efficiency	\$1,219	1 single student
1 Bedroom (unfurnished)		Not available
1 Bedroom	\$749	2 students per unit
2 Bedroom	\$633	3 students per unit
3 Bedroom	\$717	3 students per unit

*All room and apartment rates are subject to change.



Until the Central Campus Apartments are ready for occupancy, the University has no housing for married graduate and professional students. Meantime, the Department of Housing Management is prepared to offer assistance in locating suitable housing in Durham. There are many relatively new complexes and a few older apartments.

Further information on housing can be obtained from: Manager of Apartments and Property, Department of Housing Management, Duke University, Durham, North Carolina 27706.

Application Procedures and Residential Fees. Each student accepted into a graduate or professional school of the University will be provided with a form on which to indicate housing needs. This form will be sent to the Department of Housing Management which will provide more detailed information about rates and rental apartments.

Residential Deposit. A \$50.00 deposit is required of each applicant before any residential reservation is made. The initial residential deposit is effective during the student's residence in University housing if attendance is continuous in regular academic years.

Refund. The deposit will be refunded under the following conditions:

1. Within thirty days after the student has been graduated, provided written notice requesting a refund is received at the Office of Housing Management.
2. Upon withdrawal from a Duke University residence by students enrolled on the semester basis, provided written notice is received by the Director of Housing Management by July 15 for cancellation of a reservation for the fall semester, and not later than December 31 for cancellation of a reservation for the spring semester.
3. When the reasons requiring withdrawal are beyond the student's control. No refund will be made until the occupant has checked out of his room through the Housing Office and has settled his account with the Bursar.

Rooms are usually rented for the academic year and are not rented for a period of less than one semester without special arrangements. After the day of registration, no refund of room rent will be made except for a call to active duty into the armed services. Such refunds will be made in accordance with the University's established schedule. Regulations governing the occupancy of rooms will be supplied by the Director of Housing Management to those students who make application for housing.

Debts

No records are released and no student is considered by the faculty as a candidate for graduation until he has settled with the Bursar for all indebtedness.

Late Registration Fee

Students who register in any semester at a date later than that prescribed are required to pay to the Office of the Bursar a \$10.00 penalty for late registration.



Athletic Events Fee

Law students may secure admission to all regularly scheduled University athletic contests held on the University grounds during the entire academic year by payment of the athletic fee of \$25.00 per year plus tax. This fee is payable in the fall semester. Students may also use the facilities of the Duke golf course upon payment of student green fees.

Duke Bar Association

A \$5.00 fee each semester is due and payable not later than the day of registration for a particular semester. This fee is utilized exclusively to support the activities of the student bar association.

Scholarship Assistance

The Law School recognizes that many meritorious students are unable to pay the full cost of their legal education and, therefore, a number of University and endowed scholarships are awarded annually to assist students who merit recognition for past academic performance and who need financial aid. Each year the Law School fully commits its scholarship resources, and continuous efforts are always underway to develop new sources for scholarship funds. Despite this, at present Duke Law School does not have the resources to provide scholarship assistance to all qualified students who are in need. Most students who need financial aid are required to rely heavily on loan funds.

A student seeking scholarship aid should file a financial aid application at the same time he files his application for admission. An attempt will be made to inform all scholarship applicants of both the admission and the scholarship decisions at the same time, although it is possible that decisions on some scholarship grants will be made later than the admission decisions. Whether an applicant has applied for a scholarship will not affect the admission decision of the Law School. Duke Law School requires all scholarship applicants to utilize the Graduate and Professional School Financial Aid Service (GAPSFAS). Applicants should request information on GAPSFAS by writing Graduate and Professional School Financial Aid Service, Box 2614, Princeton, New Jersey 08540.

University Scholarships. Duke University has established a number of University Scholarships that vary widely in amount. Except for a few scholarships that are based purely on merit, University scholarships are awarded only to needy applicants with superior college records and comparable Law School Admission Test scores. Most University scholarships awarded by the Law School cover part of the tuition charge. In cases of exceptional merit and need, a few scholarships may consist of full tuition and a stipend. The more usual form of financial aid for the gifted applicant is a combination of a scholarship and loan. Most of the endowed and University scholarship grants are renewable for second and third year students who maintained a 2.7 grade point average on a 4.0 scale in the previous academic year. It is expected that approximately one-half of the members of each first year class will achieve a cumulative grade point average above 2.7 on a 4.0 scale at the conclusion of their first year. Loan assistance is provided in the event that a scholarship is not renewed.

Scholarships for Minority Students. Duke University has established a limited number of scholarships for qualified, needy minority group students. Further information on these awards will be sent upon request.

Phi Alpha Delta Fellowship Program. This fellowship was created by Phi Alpha Delta Law Fraternity for first year minority students. Applications are not available to chapters until March 1, and the competition commences in late spring. Applicants need not be members. Ten students are selected annually to receive a \$500.00 fellowship.

Endowed Scholarships. The following endowed scholarships are available to Law School students:

Beard-Rees Scholarship. This scholarship was established by classmates and friends in 1968 to honor the memory of Robert L. Beard and David W. Rees of the Law Class of 1964. The fund is used to assist students of all-round character and potential as a tribute to the high personal standards, professional excellence, and accomplishments of these men.

B.S. Womble Scholarship. The B.S. Womble Scholarship has been established by a distinguished Duke alumnus, B.S. Womble, and members of his family. The scholarship is awarded on the basis of the moral character, scholastic ability, seriousness of purpose, and leadership potential of the applicant.

Elvin R. Latty Scholarship. Alumni and friends of the Law School established this fund in 1968 as a tribute to the wisdom, foresight, and dedication of Dean Emeritus Latty.

John R. Parkinson Memorial Law Scholarship. This scholarship will be awarded at least biennially to a student whose prelaw achievements indicate a potential for academic excellence while in the Law School and a professional career in which outstanding service to clients and to the profession will be rendered.

Martha Garner Price Fellowship. This fellowship was created by a gift to the Rule of Law Research Center by the children of Ralph Price—the late Clay Price, Julian Price, and Louise (Mrs. Young Smith), in memory of their mother, Martha Garner Price. The purpose of this fellowship is to support advanced research in the field of international organization.

Richard M. Nixon Scholarship. This scholarship was established by an initial gift from the Class of 1937 to honor their classmate, President Richard M. Nixon. The fund is growing rapidly and the first Nixon Scholar was named in the fall of 1973. This distinguished scholarship will be awarded only to students who show evidence of exceptional potential for leadership.

David H. Siegel Memorial Scholarship. This scholarship was established by Allen G. Siegel of the Law Class of 1960 in memory of his father who was also an attorney. The first recipient of this award was selected in the fall of 1973 and a new award will be made each year.

Loan Assistance

After admission and scholarship decisions are made, prospective law students who need loan funds to help finance their legal education will be considered for such funds. Therefore, when an applicant receives his offer of admission, he also knows exactly what financial aid is available to him. When the student confirms his place in the entering class and accepts our financial aid offer, the appropriate loan application will be sent to the student. In no event should applications be filed later than July 1 prior to the beginning of the fall semester and November 15 prior to the beginning of the spring semester.

In addition to filing the Duke financial aid form, applicants for all loans administered or certified by Duke University are required to participate in the Graduate and Professional School Financial Aid Service (GAPSFAS). Informa-

tion and application material for GAPS FAS can be obtained by writing Educational Testing Service, Box 944, Princeton, New Jersey 08540.

The following loan sources are either administered by Duke University or are available to Duke Law students. Approval of any loan application is based on the financial need, satisfactory scholastic standing, and personal integrity of the applicant.

NDSL Loans. Loans are available to Duke Law students through the student loan program established under the National Direct Student Loan Program, assuming the continuation of appropriations by the Congress for this purpose. Interest on these loans begins to accrue at 3 percent nine months after the student leaves the Law School, and repayment usually begins ten months after the student leaves the Law School, with complete repayment scheduled over a period of up to ten years. Duke administers all NDSL loan funds allocated to it under strict federal guidelines dealing with such issues as the amount of parental income, reasonableness of budgets, complete disclosure of assets, and emancipation within the meaning of the applicable federal regulations.

Federally Insured Student Loan Program. The Duke University Program allows the student to borrow up to \$2,500 per year at a 7 percent interest rate. A student will have a maximum of ten years following graduation or withdrawal from the University to repay the loan. An interest subsidy is available from federal funds for all students who have demonstrated need on the GAPS FAS report. In order to qualify for the interest subsidy from the government, the GAPS FAS report must be submitted.

Deferred Tuition Program. In 1971, Duke University adopted a Deferred Tuition Plan to provide another alternative source of financial aid to needy applicants. The Law School has a limited amount of funding available for deferred tuition loans. The unique feature of a deferred tuition loan is that the obligation to repay later is related to future income and is not defined in terms of a fixed dollar amount.

It is anticipated that there will be some changes in this program in the near future. Further information can be obtained by writing the Admissions Office.

University Loans. In addition to the loans described immediately above, some limited financial assistance in the form of loans from funds held in trust by the University is available to qualified law students. Interest on these loans, which mature after the student has left the School, accrues from the date of each note at the rate of 1 percent until the student has left the School and for five years thereafter at 3 percent per year, with repayment installments over the five-year period.

Dean's Emergency Loans. Alumni gifts have created a special Dean's Discretionary Fund. In cases of immediate exceptional need, small noninterest bearing loans are available for short periods to cover students who have temporary financial emergencies.

State Guaranteed Loans. Most states have established guaranteed loan programs for graduate and undergraduate study for their own residents. The terms of such loans, the methods of administration, and the availability of funds vary widely among the various states. The Law School will supply information regarding the appropriate agencies to contact in each state and will also make appropriate certifications in support of the loan applications of individual students applying for state guaranteed loans.



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Scholastic Standards

Grading

The grading system of the Law School is a numerical system based on a 4.0 scale. While grade distribution will vary from course to course, the normal distribution in an average class with a large (over 40 students) enrollment will approximate the following:

<i>Numerical Grade</i>	<i>Percentage</i>
3.5-4.0	10-15
2.7-3.4	35-40
1.8-2.6	40-50
1.3-1.7 }	
1.0-1.2 }	0-10

Rank in Class

Information on rank in class is not released to prospective employers or to individual students. Students are, of course, free to release their cumulative grade point averages as well as their individual course grades to prospective employers. If a student does choose to release such information, the prospective employer may verify the accuracy of such released information with the Law School.

Examinations

A written examination at the conclusion of each course is required, with the exception of seminars and certain specific courses usually involving research

and drafting. As a rule, one examination is administered at the end of each course. Examinations are anonymously graded and are administered under the honor system.

Credit/No-Credit Option

Second and third year students are permitted to choose credit/no-credit courses up to a maximum of six hours per semester to be graded on a credit/no-credit basis, subject to the limitation that no student may accumulate more than fifteen hours of ungraded credit during his academic career at Duke. Summer school hours and hours earned in courses taken in other divisions of the University are included in this total. Courses in the Law School which by faculty action are graded on a credit/no-credit basis only do not count for this total. For students who wish to take two summer sessions, the fifteen hour limitation may be increased to a maximum of twenty hours with special permission from the Dean. Students involved in joint degree programs within Duke University are permitted to take a maximum of twenty hours on a credit/no-credit basis.

Students electing courses to be graded under a credit/no-credit option receive a grade of *credit* if they achieve a numerical grade of 1.3 or better. Students receiving a numerical grade of 1.2 or less (or an *F*) receive a grade of *no credit*. Grades of *credit* and *no credit* are not averaged into a student's grade point average for any purpose, but appear on the transcript. A grade of *no credit* is not counted for purposes of the eighty-four hour requirement for graduation, but the hours count for purposes of meeting the twelve hour minimum course load for residence credit.

No academic credit is accorded the following programs: *Duke Law Journal*, Legal Research Program, and Moot Court Board.

Courses in Other Divisions of the University

Second and third year students may take courses offered in other divisions of the University upon the condition that the student is engaged simultaneously in at least ten semester hours of courses in the Law School. Credit (limited to a total of six hours) toward the J.D. degree will be granted for those courses which, in the judgment of the Dean, are related to the student's education in the law. A written request for permission to enroll in a University course outside the Law School must be presented to the Dean. A grade of *C* (or *S*) or better will be transferred to the Law School on a credit/no-credit basis. No credit will be awarded for a grade lower than *C* (or *S*).

Summer School

Students who wish to attend summer sessions at other law schools must submit a written request to the Dean for permission to do so. The request should state the name of the school and the courses to be taken. A grade of *C* (or *S*) or better will be transferred to the Law School on a credit/no-credit basis. No credit will be awarded for a grade lower than *C* (or *S*).

Eligibility to Continue Law Study

Good Standing. Any student with an overall grade point average of 1.80 or higher shall be in good standing and entitled to continue the study of law.

Probation. Any student with an overall grade point average of less than 1.80

but not less than 1.70 and who has received failure grades in courses totaling not more than nine semester hours shall be placed on probation for the next two semesters.

Any student who in the second year receives failure grades in courses totaling six or more semester hours shall be placed on probation for the next two semesters.

Every student on probation shall be subject to the special supervision of the Dean for the probationary period. The Dean may require that courses designated by him shall be taken by the student. A student on probation shall be ineligible to continue the study of law at this institution if at the end of the probationary period his overall average for all work undertaken at the Law School is not 1.80 or higher.

Repetition of First Year. Any first year student with an overall grade point average of less than 1.70 but not less than 1.60 and who has received failure grades in courses totaling not more than nine semester hours shall be permitted to repeat the first year. At the option of the student, upperclass courses may be substituted for first year courses in which a grade of 2.0 or higher was achieved. A student repeating the first year shall be eligible to continue the study of law only if he achieves a grade point average of not less than 1.80 for that year. Any student repeating his first year under this rule who achieves an average of 1.80 or higher, but less than 2.0, or achieves an average greater than 2.0 but receives a failure grade in one or more courses, shall be placed on probation and is subject to the provisions of the preceding paragraph.

If the student elects not to repeat the year, he shall be given an opportunity to withdraw voluntarily from the School, and if he does not do so shall be declared ineligible to continue the study of law.

Ineligibility to Continue. Any first year student with an overall grade point average of less than 1.60 or who has failed courses totaling more than nine semester hours of credit shall be ineligible to continue the study of law at this institution.

Notification of Unsatisfactory Scholastic Standing

The Dean shall inform each student who is not in good standing of his status, the requirements which he must meet to continue to be eligible for the study of law at this institution, and the requirements that he must satisfy to be eligible for graduation.



6

Registration and Regulations

Registration

All students are required to register on the dates prescribed in the Law School Calendar, at which time class schedules and course cards must be completed and approved. A student's registration for any semester is not complete until he has settled all indebtedness with the Office of the Bursar. A student is not eligible to attend classes or to make use of University facilities if he has any outstanding debt to the University.

A student may alter his registration by enrolling in or withdrawing from a course or changing the basis upon which he will be graded in the course during the first week of a semester without special permission. With the approval of the professor concerned and the Assistant Dean, a student may alter his registration at any time prior to the end of the fourth calendar week following the commencement of classes. No alteration of enrollment may be made after the fourth week of classes without permission of the faculty. A charge will be made for each course alteration.

Registration for Bar Examination

Many states now require that a student, prior to or shortly after beginning the study of law, register with the board of bar examiners of the state in which he plans to practice. This should be accomplished within thirty days after matriculation in law school. Students are advised to consult the rules of all states in which they may be interested in practicing after graduation.

Academic Regulations and Course Requirements

No student is permitted to take fewer than 12 course hours per semester without permission of the Dean. No first year student may take courses in excess

of the first year program without permission of the Dean. Second and third year students are not permitted to take for credit more than 16 course hours per semester, nor may they audit and take for credit more than 17 course hours per semester without permission of the Dean.

No student will receive full residence credit if he takes fewer than 10 hours per semester for credit.

Rules Concerning the Submission of Grades

All grades for all courses and seminars must be submitted by faculty members on or before the twenty-eighth calendar day following the last day of the regularly scheduled examination period.

Rules Concerning Examinations and the Submission of Research Papers

No student may enroll in any course in which he has previously submitted a research paper or has taken the final examination except a student who failed the course and is required by the instructor to retake it, or who obtains the permission of the faculty to do so. The grade received in the second enrollment in the course will be substituted for the first grade received, except that the highest grade for which a student shall be eligible on a retaking of a course is a grade of 2.2.

No credit will be given a student for any research paper submitted in partial or full completion of the requirements of a course in which he is enrolled unless the paper is submitted on or before the first day of spring semester classes for a course given in the fall semester, and on or before the last day of the examination period for a course given in the spring semester, or on an earlier date if the faculty member requires it.



Except with the joint permission of the Dean and the faculty member involved, no student shall receive any credit for any examination taken in partial or full completion of the requirements of a course in which he is enrolled unless the examination is taken at the time it is regularly scheduled. Such permission shall be granted only in the case of sickness, extreme personal hardship, or a conflict in the scheduling of two or more examinations.

A faculty member may deny a student the right to take an examination in his course and may enter a failing grade for excessive absences or gross unpreparedness.

Regulations Governing the Awarding of Degrees

Degrees are awarded at Duke University in September and May. The names of Duke Law School students who have successfully completed all of the necessary requirements for a degree are presented, by the Dean, to the University Secretary. The University faculty and the Board of Trustees meet in the early fall and just prior to the May graduation date to approve candidates presented for degrees.

Students who graduate in midyear from the Law School will not be awarded a degree until May and, therefore, should ascertain whether they will be permitted to take the bar examination in the state in which they plan to practice before the degree is conferred.

The Honor System

The honor system of the Duke Law School demands the highest standards of academic and professional conduct. It is enforced by a student judicial code.

Rules Concerning Graduating in Absentia

Students who wish to be graduated *in absentia* should submit a written request to the Dean's office at least six weeks before graduation. In such cases, the diploma will be mailed.

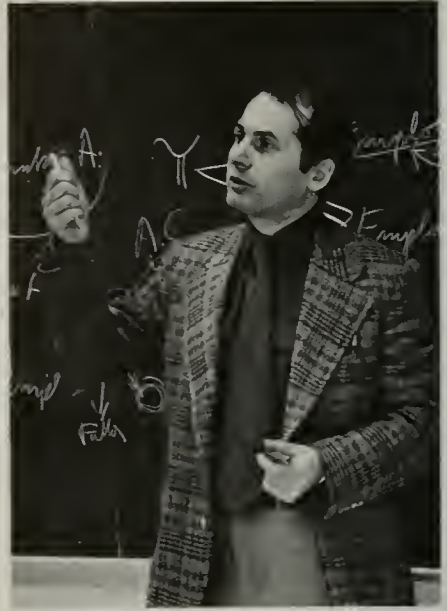
General Rules of the University and the Law School

Students are subject to the rules and regulations of the University and the Law School which are currently in effect, or those which in the future may be promulgated by the appropriate authorities of the University. Every student, in accepting admission, indicates his willingness to subscribe to and be governed by these rules and regulations. He also acknowledges the right of the University to take such disciplinary action, including suspension and/or expulsion, as may be appropriate, for failure to abide by these rules and regulations, or for other conduct adjudged unsatisfactory or detrimental to the University.

Policy Concerning Pickets, Protests, and Demonstrations

Duke University respects the right of all members of the academic community to explore and to discuss questions which interest them, to express opinions publicly and privately, and to join together to demonstrate their concern by orderly means. It is the policy of the University to protect the exercise of these rights from disruption or interference.

The University also respects the right of each member of the academic



community to be free from coercion and harassment. It recognizes that academic freedom is no less dependent on ordered liberty than any other freedom, and it understands that the harassment of others is especially reprehensible in a community of scholars. The substitution of noise for speech and force for reason is a rejection and not an application of academic freedom. A determination to discourage conduct which is disruptive and disorderly does not threaten academic freedom; it is, rather, a necessary condition of its very existence. Therefore, Duke University will not allow disruptive or disorderly conduct on its premises to interrupt its proper operation. Persons engaging in disruptive action or disorderly conduct shall be subject to disciplinary action, including expulsion or separation, and also to charges of violations of law.

The foregoing general statement of policy is not to be construed as limiting the University's right to maintain an atmosphere conducive to scholarship.

Motor Vehicle Registration

Each motor vehicle operated on Duke University campuses by students enrolled in the School of Law must be registered at the Traffic Office, 2010 Campus Drive, within five days after operation on the campus begins, and thereafter must display the proper registration decal. A registration fee of \$10.00 will be charged for each automobile and \$5.00 for each motorcycle.

To register a vehicle, the student must present the following documents: (1) valid state registration for vehicle registered, (2) valid state operator's license, and (3) satisfactory evidence of liability insurance as required by the State of North Carolina—\$10,000 per person, \$20,000 per accident for personal injuries, and \$5,000 property damage.

Parking, traffic, and safety regulations will be given to each student at the time of registration of his vehicle. Students agree to abide by these regulations in exchange for the privilege of operating a motor vehicle on the campus.



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Curriculum

Degree Program

The curriculum at Duke Law School is not fixed and static. All courses are subject to constant evaluation and the organization of the curriculum itself is subject to critical examination each year by the faculty. The curriculum organization for the academic year 1974-1975 is set forth below.

First Year Curriculum

The first year curriculum is required for all J.D. candidates.

Courses	Fall	December Examination	Spring	May Examination
Civil Procedure	3		3	X
Criminal Law	3	X		
Contracts			5	X
Constitutional Law	3		2	X
Torts	5	X		
Property			4	X
Research & Writing	$\frac{1}{15}$	$\frac{1}{8}$	$\frac{1}{15}$	$\frac{1}{20}$

The first year class will be divided unevenly for assignment to sections of each course. One or more sections of each first year course will be small, with about twenty students. The other section of that course will contain the balance of the first year class. Each first year student will be assigned to one small section class and will study with the balance of his class in the large sections of all other courses. For example, if a student is assigned to the small section in Torts he will automatically be assigned to the large section of his other first year



courses. The research and writing program will be organized in conjunction with the small sections of each course.

110. Civil Procedure. This course is devoted to a consideration of the basic problems of civil procedure. It is designed to acquaint students with the fundamental stages and techniques of litigation—e.g., pleading, discovery, trial, appeal, judgments, and multiparty actions—and to introduce them to underlying problems such as jurisdiction, choice of law in a federal system, and the role of courts as law-making institutions. 3 s.h. fall; 3 s.h. spring. *Paschal and Read*

120. Constitutional Law. The distribution of and limitations upon governmental authority under the Constitution of the United States. Included are study of the doctrine of judicial review of legislative and executive action; the powers of Congress and the President; the limitations on state governmental powers resulting from the existence or exercise of congressional power; and judicial protection against the exercise of governmental power in violation of rights, liberties, privileges, or immunities conferred by the Constitution. 3 s.h. fall; 2 s.h. spring. *Dellinger, Levin, and Van Alstyne*

130. Contracts. The formation and legal operations of contracts, their assignment, significance to third parties, and relationship to torts, restitution, and commercial law developments; the variety, scope, and limitations on remedies; and the policies, jurisprudence, and historical development of promissory liability. 5 s.h. spring. *Van Alstyne and Weistart*

140. Criminal Law. An introductory study of the law of crimes and the administration of criminal justice; analysis of the criminal act and the mental element in crime; consideration of specific offenses as defined by statute and the

common law; discussion of typical defenses in relation to specific crimes. 3 s.h. fall. *Dugard, Livengood, and Shimm*

160. Property. The basic concepts of real property law and conveyancing. Historical background; estates in land, including the fee simple, the fee tail with its statutory substitutes, the life estate, the estate for years and other non-freeholds; concurrent ownership; types of future interests; conveyances before and after the Statutes of Uses, landlord and tenant; the modern deed—kinds, delivery, description, title covenants; and agreements running with the land at law and in equity; easements; recording and title registration. 4 s.h. spring. *Reppy and Sparks*

170. Torts. An analysis of liability for personal injuries and injuries to property. After considering "cause in fact," intentionally inflicted harm and the development from trespass to negligence, the course concentrates mainly on the negligence issue. The reasonable man standard, and its application and proof before courts and jury are explored. Limitations such as contributory negligence, lack of duty, and proximate cause are considered as are special rules governing owners and occupiers of land. The question of damages is analyzed; the course also examines strict liability, the liability of producers and sellers of products, insurance, and workmen's compensation. 5 s.h. fall. *Christie and Lange*

In addition, all students are required to undertake instruction in the duties and responsibilities of the legal profession.

Second and Third Year Curriculum

In the absence of special authorization from the Dean, each student is required to take in each semester courses aggregating not less than 12 and not more than 16 hours.

The program in the second and third years is entirely elective. In planning his elective program, the student should bear in mind that certain courses are prerequisites to other advanced courses:

Business Associations is a prerequisite to Business Planning, Securities Regulation, and the Seminar in Corporate Planning and Drafting.

Civil and Criminal Trial Practice is a prerequisite to the Clinical Seminar in Criminal Justice Administration.

Corporate Finance is a prerequisite to the Seminar in Advanced Corporate Taxation.

Corporate Taxation is a prerequisite to Business Planning and the Seminar in Advanced Corporate Taxation.

Evidence is a prerequisite to trial practice courses and clinical courses.

Estate and Gift Taxation and Trusts and Estates I and II are prerequisites to the Seminar in Estate Planning.

Labor Relations I is a prerequisite to Labor Relations II.

Labor Relations I and II are prerequisites to the Seminars in Labor Law and Internal Union Affairs.

Personal Income Taxation is a prerequisite to other tax courses.

Securities Regulation is a prerequisite to Business Planning.

Trusts and Estates I is a prerequisite to Trusts and Estates II.

The student should also bear in mind that, although the program in the second and third years is entirely elective, for logical course progression and in order to avoid conflicts in the class schedule, it would be advisable for cer-

tain basic electives to be taken in the second year and certain other electives in the third year. Advice is available in the Dean's office.

Clinical Education. In its continuing efforts to provide a broad legal education, Duke Law School has made a strong commitment to the development of clinical legal education. At the present time the clinical program is staffed by a director and two graduate fellows offering four credit clinical courses in the Administration of Criminal Justice and Legal Rights of Older Americans. These courses combine simulation and gaming teaching techniques with closely supervised representation of indigent clients for maximum educational benefit to the students involved. Expansion of clinical education into new areas of the law is planned for the future. Substantial clinical experience is also available in the following courses and seminars:

- Civil Trial Practice
- Civil and Criminal Trial Practice
- Seminar in Corporate Planning and Drafting
- Seminar in Estate Planning
- Seminar in Negotiation
- Seminar in Psychiatry and the Law
- Seminar in Legal Problems of a University

Second Year—Recommended Courses

Courses	Fall		Spring
Administrative Law			3
Business Associations*	4		
Commercial Law	4		
Corporate Taxation			3
Estate and Gift Taxation			2
Evidence*	3	or	3
Labor Relations I*	2		
Labor Relations II*			2
Legal Accounting	2		
Personal Income Taxation	3		
Trusts and Estates I*	4		
Trusts and Estates II*			2

Other Electives

Courses	Fall		Spring
Admiralty	3		
Antitrust			4
Business Planning			4
Civil Trial Practice			2
Civil and Criminal Trial Practice	3	or	3
Civil and Criminal Trial Practice	2	or	2
Conflicts of Law	3		
Corporate Finance	2		
Debtor's Estates			3
Environmental Law			3
Equitable Remedies	2		
Family Law	3		
Federal Courts			3
International Law I	3		
International Law II			2
International Business Transactions			3
Labor Standards			2
Land Use Planning	2		
Law and the Arts			3
Legal Profession			1

*For those intending to take advanced courses and seminars in area.

Courses	Fall		Spring
Modern Real Estate Financing			3
Regulated Industries	3		
Securities Regulation	3		
Urban Problems			2
Workmen's Compensation			2
Seminars			
Advanced Corporate Taxation	2		
Clinical Seminar in Criminal Justice Administration			4
Clinical Seminar in Problems of Older Americans	4		
Community Property	2		
Comparative Civil Liberties			2
Comparative Law			2
Corporate Planning and Drafting	2	or	2
Criminal Law			2
Criminal Procedure	2		
Estate Planning	2		
Federal Practice of Civil Rights and Civil Liberties	3		
Internal Union Affairs	2		
International Organizations	2		
Labor Law	2		
Legal Issues in Health Care	2		
Negotiation	2		
Organization, Financing and Governance of Public Schools			3
Psychiatry and the Law	2		
Racial Discrimination	2		
Sex Discrimination			2
Tax-Exempt Organizations	2		
Independent Research	-	and	-

Not Offered 1974-1975

Consumer Protection
 Income Taxation of Partnerships, Estates, and Trusts
 Jurisprudence
 Legal History
 Military Law
 Patents, Trademarks, and Unfair Competition
 Seminar in Communications
 Seminar in Law and Politics
 Seminar in Legal Problems of a University
 Seminar in Poverty and Law
 Seminar in Sentencing and Corrections
 Seminar in World Law

In addition to the courses set forth above, the Law School encourages individual and small-group research and study for credit. Law students in their second and third years of the J.D. program may undertake up to 4 hours of independent research in any academic year if the research is approved by a faculty member. Research work will be graded on a credit/no-credit basis. Students undertaking independent research will meet regularly with the faculty member supervising the research in order to ensure contemporaneous discussion, review, and evaluation of the research experience.

A group of five or more students may plan and conduct their own research and seminar program for not more than 2 semester hours of credit (which shall

*For those intending to take advanced courses and seminars in area.

be considered to be independent research within the meaning of the maximum limitation of 4 hours of independent research each year). A request to establish such an *ad hoc* seminar should be addressed to the Dean at least two months before the beginning of the semester in which the seminar is proposed. The Dean will request a member of the faculty to evaluate the program and recommend whether the proposed program has academic merit. If approved by the Dean, a faculty member will be requested to evaluate the contribution of each participant before awarding credit. Such seminar work shall be graded on a credit/no-credit basis.

Second and third year students may also take courses offered in other divisions of the University upon the condition that the student is engaged simultaneously in at least 10 semester hours of courses in the Law School. Credit (limited to a total of 6 hours) toward the J.D. degree will be granted for those courses which, in the judgment of the Dean, contribute to the student's education in the law or professional interests. A grade of C (or S) or better will be transferred to the Law School on a credit/no-credit basis. No credit will be awarded for a grade lower than C (or S).

All students are advised to study carefully the rules governing admission to the bar in each state in which they are considering practicing after graduation. Some states have specific requirements, and others, such as New York, have detailed provisions relating to other matters.

Upperclass Course Descriptions

400. Admiralty. The special body of law governing maritime affairs, especially the transportation of goods and passengers by water. Admiralty jurisdiction; marine insurance; carriage of goods; charger parties; general average; rights of injured seaman and others; collision; salvage; maritime liens and ship mortgages; limitations of liability; governmental activity in shipping. 3 s.h. fall. *Paschal*

200. Administrative Law. Administrative agencies and legislative authority; information gathering and withholding; rulemaking and order-formulating proceedings; judicial review of administrative action; constitutional limitations on administrative power. 3 s.h. spring. *Fleishman*

205. Antitrust. A study of the federal antitrust laws and the policy of using competition to control private economic behavior. 4 s.h. spring. *Havighurst*

210. Business Associations. The process of incorporation, promoters and pre-incorporation transactions, distribution of powers within that corporation, workings of the proxy system, special features of the close corporation, duties, and liabilities of insiders, problems in connection with the purchase or sale of any security, shareholders derivative suits and related rights and comparison with general principles of agency and partnership. In addition: generalized treatment of financing of corporate enterprise, governmental regulation of distribution of public issues of securities, dividends and other distributions to shareholders, fundamental changes by recapitalization, merger and other combinations. (Specialized treatment of these topics are reserved for other courses and seminars, particularly Corporate Finance, Securities Regulation, and Business Planning.) 4 s.h. fall. *O'Neal*

300. Business Planning. This course involves advanced work in corporation partnership and income tax law, securities regulation and accounting on a series of problems that commonly and currently face business lawyers in the

formation and financing of business organizations, restructuring ownership interests and financing their withdrawal, share repurchases for insiders' strategy, sales and purchases of businesses, merger and other enterprise combination, enterprise division and dissolution. The problems are analyzed, and solutions are presented in class discussion and papers, by an integrated approach that embraces the interplay of restraints posed by various areas of the law. Courses in corporate tax and securities regulation are prerequisites to this course. 4 s.h. spring. Stolz

385. Civil Trial Practice. A study of the advocate in the trial of civil law suits, with emphasis on methods of pretrial preparation and development of facts in court, typical uses of rules of procedural and substantive law in trial proceedings, and tactical and ethical aspects of problems which confront the trial lawyers. 2 s.h. spring. *Caffrey*

380-1. Civil and Criminal Trial Practice. This course covers the same general subject matter as does the course in Civil Trial Practice and also examines the problems facing the advocate in a criminal proceeding. 3 s.h. fall; 3 s.h. spring. *Bocchino*

380-2. Civil and Criminal Trial Practice. This course covers the same general subject matter as does the course in Civil Trial Practice and also examines the problems facing the advocate in a criminal proceeding. 3 s.h. fall. *Gelt*

380-3. Civil and Criminal Trial Practice. This course covers the same general subject matter as does the course in Civil Trial Practice and also examines the problems facing the advocate in a criminal proceeding. 2 s.h. fall. *Johnson*

380-4. Civil and Criminal Trial Practice. This course covers the same general subject matter as does the course in Civil Trial Practice and also examines the problems facing the advocate in a criminal proceeding. 2 s.h. spring. *To be announced.*

215. Commercial Law. This integrated study of the law governing commercial transactions emphasizes the application of the Uniform Commercial Code, particularly the articles dealing with sales, secured transactions, and commercial paper. A primary objective of the course is the development of an analytical basis for interpretation of this statute. The business judgments of commercial practice provide an interpretative framework. The structure of typical transactions is emphasized to suggest both the interrelation of the several articles of the Code and the relevance of other statutory and decisional law. Topics which are given particular emphasis include the enforceability of limitations on sales warranties, the optional nature of remedies for the breach of sales contracts, the function of common forms of commercial paper, the mechanics of the bank collection process, and the operation of retail systems. 4 s.h. fall. *Weistart*

310. Conflicts of Law. A study of the special problems which arise when the significant facts of a case are connected with more than one jurisdiction. Recognition and effect of foreign judgments; choice of law; federal courts and conflict of laws; the United States Constitution and conflict of law. 3 s.h. fall. *Reppy*

220. Consumer Protection. Trends in laws affecting retail buying and selling of goods and services. The course will focus on problems involving pur-

chases of personal property, especially by the poor and uneducated, with some attention also given to purchases of realty and services. The area of product quality and liability will also be explored briefly. (Not offered 1974-1975.)

315. Corporate Finance. Diverse characteristics of shares and creditor securities, consideration and payment of shares, rights and option in shares, capital and surplus and related accounting concepts, limitations on dividends and share repurchases, impact of federal regulation on promoter's role and public-issue financing, anatomy of merger, asset and stock acquisitions, alteration and combining of corporations. 2 s.h. fall. *O'Neal*

320. Corporate Taxation. A selection of substantial income tax problems affecting corporations and shareholders. 3 s.h. spring. *Kilbourn*

325. Debtor's Estates. Comparative study of methods used for the liquidation and distribution of debtor's estates. The non-bankruptcy materials cover individual creditor's rights by attachment, garnishment, execution, creditors' bills, and supplementary proceedings; common law compositions and extension; and general assignments. The bankruptcy materials cover, in the main, the first seven chapters of the Bankruptcy Act. 3 s.h. spring. *Shimm*

327. Environmental Law. A study of recent statutes and cases related to environmental management and natural resource protection. Emerging national environmental policy is examined within its social, economic, and ecological context. 3 s.h. spring. *Wallace*

332. Equitable Remedies. A survey of equitable remedies in general (including enforcement of equity decrees) and of important parts of the fields of equity and restitution that are not covered in other courses. 2 s.h. fall. *Sparks*

330. Estate and Gift Taxation. The principle emphasis of the course is on the federal estate and gift taxes. Consideration is also given, however, to the related portions of the federal income tax dealing with the taxation of the income of estates and trusts. 2 s.h. spring. *Kilbourn*

225. Evidence. A study of the theory and rules governing the presentation of evidence to a judicial tribunal including the function of the judge and jury; the concept of relevancy; character evidence, judicial notice; real and demonstrative evidence; authentication of writings, the best evidence rule; competency, impeachment, and rehabilitation of witnesses; hearsay and the exceptions to its exclusion; privileged communications. 3 s.h. fall; 3 s.h. spring. *Read and Pye*

335. Family Law. Developments in the relationship between the state and the family. The course will survey the spectrum of family relationships and activities regulated in some fashion by the state, including procedures for marrying, legal relationships within an on-going family, and problems in the dissolution of the family. Special emphasis will be placed on agreements concerning the custody of children and property settlements on divorce. There will be some discussion of the family as seen by other behavioral disciplines. 3 s.h. fall. *Marschall*

340. Federal Courts. A study of the federal courts with respect to the part played by them in achieving a workable federalism. Special attention will be given to the original jurisdiction of the federal district courts, the relationship of the federal courts to state courts and state law, and the permissible and desirable range of federal judicial power. 3 s.h. spring. *Paschal*

392. Income Taxation of Partnerships, Estates, and Trusts. An introduction to the federal income tax problems of partnerships and estates and trusts. (Not offered 1974-1975.)

345. International Business Transactions. Legal framework of U.S. foreign trade and investment; foreign trade and investment laws of selected foreign countries; function of international economic law; international economic agreements; problems of foreign trade and investments. 3 s.h. spring. *Grzybowski*

230. International Law I. A survey of public international law of peace, as evidenced especially in decisions of national and of international courts; the drafting and interpretation of treaties; the nature of handling of international claims; the organization and jurisdiction of international tribunals with special reference to the International Court of Justice; developments with respect to the codification of the law. 3 s.h. fall. *Grzybowski*

231. International Law II. This course will consider areas of International Law not included in International Law I with special emphasis upon recent problems. 2 s.h. spring. *Dugard*

235. Jurisprudence. A historical examination of the development of legal philosophy from ancient times to the contemporary period. (Not offered 1974-1975.)

240. Labor Relations I. This course, in combination with Labor Relations II, is envisioned as an integrated, full-year, two-hour program in basic labor relations law. However, it is recognized that some students are primarily interested in other fields and want only enough labor law to enable them to recognize a labor problem when they see one and to know when to consult a specialist. Consequently, Labor Relations I can be taken independently. Its core is the establishment of the collective bargaining relationship—with emphasis upon the organizational process and the law relating to strikes, lockouts, picketing, boycotts and unfair labor practices. A concerted effort is made to throw in enough collective bargaining law to avoid leaving the distorted impression that labor relations consist exclusively, or even primarily, of economic warfare. 2 s.h. fall. *Livengood*

245. Labor Relations II. It is anticipated that most students who take Labor Relations I will continue with Labor Relations II, and the former is a prerequisite to the latter. The primary focus of the course is upon the negotiation and administration of collective agreements after the bargaining relationship has been established. Attention is given to the duty to bargain (its nature, scope, and duration), the terms of the labor-management contract, and procedures for orderly dispute settlement (arbitration, mediation, judicial enforcement, etc). As time permits, some consideration is given to the "frontiers" of labor law—public sector bargaining, national emergency disputes, internal union affairs, individual employee rights, etc. Obviously, the line between Labor Relations I and II is artificial and amorphous, and it will not always be drawn in the same place. It is contemplated, however, that the student who has taken Labor Relations I, Labor Relations II, Labor Standards, and the Seminars in Labor Law and Internal Union Affairs will have had a fairly comprehensive exposure to the major areas of elementary labor law. 2 s.h. spring. *Livengood*

350. Labor Standards. Government regulation of conditions of employ-

ment, including the Fair Labor Standards Act and other wage-hour and child-labor statutes, unemployment insurance, workmen's compensation, equal employment opportunity, and other social security legislation, and related laws establishing minimum standards for the creation, continuance, and termination of the employment relationship. In addition to other objectives, the course will seek to develop skills in legislative advocacy and procedure, and in the drafting and interpretation of statutes. 2 s.h. spring. *Livengood*

355. Land Use Planning. A survey of legislative, administrative, and judicial controls utilized to facilitate the orderly development and redevelopment of real property. This consideration will include public and private nuisance, zoning, subdivision control, housing codes, street mapping, and condemnation. The clash of individual and societal interests in land use is explored through cases involving the distinction between valid police power regulations and "takings" for public use which require payment of compensation. Problems of urban renewal, regional planning, and pollution of water and air will also receive consideration. 2 s.h. fall. *Everett*

357. Law and the Arts. An introduction to basic problems in entertainment law, the area of speciality practice involving the representation of publishers, broadcasters, CTV operators, film producers, artists, writers, musicians, and performers. The course includes detailed instruction in the law of copyright as well as unfair competition in artistic works, the protection of ideas, the right of publicity and performers' rights, and selected aspects of defamation and invasion of privacy. 3 s.h. spring. *Lange*

253. Trademarks, Patents, and Unfair Competition. This course will cover the fundamentals of patent and trademark law with the aim of providing the general practitioner sufficient foundation to recognize potential problems and to collaborate effectively with specialists. Special attention will be given to the preemption of state law by the patent and trademarks statutes and to the interaction of state and federal policy in these areas. Copyright will not be covered. It will also examine select aspects of state law governing the permissible promotional, pricing, and labeling strategies available to competitors, including resale price maintenance and state limits on predatory and misleading practices. Although often neglected, this regulation is complementary to the antitrust laws and may be of even greater practical concern than antitrust law which for the most part focuses on large business enterprises. (Not offered 1974-1975.)

250. Legal Accounting. An examination and analysis of accounting principles and practices necessary for understanding and investigating facts relevant to a variety of legal problems. The course is designed to familiarize students with the language of accounting, what it discloses and what it leaves unsaid, and how the work of accountants is used by government in regulation of business, by business managers in making decisions, by lawyers in solving legal problems, and by investors and lenders in managing and protecting their property. 2 s.h. fall. *Kilbourn*

410. Legal History. A study of the development of fundamental English and American legal institutions. (Not offered 1974-1975.)

360. Legal Profession. A study of the function of lawyers; the organization of legal education and the profession, legal relations between lawyers and clients including fee arrangements, and lawyers' liability for malpractice; standards of professional conduct; techniques for making legal services avail-

able, role of lawyers in litigation, negotiation, counseling, and politics. 1 s.h. spring. *Pye*

365. Modern Real Estate Financing. An examination of techniques of real estate financing including conventional mortgages, subdivision development, and federal assistance to real developers. 3 s.h. spring. *Everett*

255. Personal Income Taxation. An introduction to federal income taxation, with emphasis on the determination of taxable income of business, the character of the income realized, and the proper taxpayer on which to impose the tax. 3 s.h. fall. *Hobbet*

370. Regulated Industries. A study of government economic regulation in such regulated industries as transportation, broadcasting, and power with emphasis on control of entry, mergers, and rates. 3 s.h. fall. *Havighurst*

375. Securities Regulation. A study of the federal and state securities laws and the industry they govern with emphasis on the mechanics and regulation of the distribution process and trading in securities; subjects dealt with include the functions of the Securities and Exchange Commission, registration and disclosure requirements and related civil liabilities, "blue-sky" laws, proxy solicitation and reporting requirements, broker-dealer regulation, the self-regulatory functions of the exchanges, and the regulation of investment companies. 3 s.h. fall. *Stolz*



265, 270. Trusts and Estates I and Trusts and Estates II. Noncommercial property dispositions, both testamentary and inter vivos, including the following topics: the state system, trusts, and powers of appointment as instruments for estate planning; intestate succession; execution and revocation of wills; creation of trusts; class gifts and construction; ademption and lapse, integration of dispositive schemes; charitable trusts; resulting trusts; remedies for wrongful interference with succession and transfer; problems in trust administration; rules against perpetuities, accumulations, and restraints on alienation. (Students may take one or both semesters except Trusts and Estates I is a prerequisite to Trusts and Estates II. Contracts and Property I are both prerequisites to Trusts and Estates I.) Trusts and Estates I, 4 s.h. fall. Sparks. Trusts and Estates II, 2 s.h. spring. Sparks

390. Urban Problems. The institutional setting, role of states and of the federal government, annexation, scope of local government power, intergovernmental relations, legislation by local government, enforcement of regulatory measures, labor-management relations in public employment, financing local government, public expenditures, urban renewal, housing and code enforcement, eminent domain, governmental tort liability. 2 s.h. spring. Everett

547. Workmen's Compensation. This course covers the main elements of workmen's compensation law in the United States, together with questions of conflict of laws, third-party actions, and coordination with other social insurance programs. 2 s.h. spring. Larson

Seminar Descriptions

523. Seminar in Advanced Corporate Taxation. Examination of income tax problems of corporations and shareholders in mergers, consolidations, recapitalizations and the various types of divisive reorganization; tax traps in sales of corporate assets and in corporate liquidations; selected income tax problems involving corporate distributions, stock redemptions, liquidations, collapsible corporations, net operating losses, personal holding companies, and unreasonable accumulations. No paper required; final examination is required. Corporate Taxation and Corporate Finance are prerequisites to this course. 2 s.h. fall. Kilbourn

521. Clinical Seminar in Criminal Justice Administration. An examination of the criminal justice system from the point of view of the criminal justice practitioner. Using simulation and gaming techniques students will participate as attorneys in a mock case from initial interview through trial covering all aspects in the development of criminal litigation. The class will also examine the administration of criminal justice following a systems approach with emphasis on the need for interaction of police, courts, and corrections. The clinical phase of the seminar requires each student to practice with criminal justice practitioners pursuant to the North Carolina Rules Governing Practical Training of Law Students. Placements include Solicitor's Offices, U.S. Attorney Offices, police legal advisers, and private defense counsel. 4 s.h. spring. Bocchino and Clinic Staff

522. Clinical Seminar on Problems of Older Americans. Interdisciplinary clinical seminar exploring legal and social problems of older people in our society. Class work includes simulated exercises on interviewing, counseling, negotiation and legislative, administrative and public interest advocacy. Substantive law covered includes social security, supplemental security income,

health services, commitment and competence, income taxation of the elderly and problems of death and dying. Class members work with legal services lawyers, sociologists and doctors at the Older American Resource and Services Center, or legislators in the North Carolina General Assembly. 4 s.h. fall. *Gelt*

503. Seminar in Communications. An in-depth study of government regulation of news media and other legal problems involving the publication and broadcasting industries. (Not offered 1974-1975.)

218. Seminar in Community Property. The marital property law of Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, and Washington; comparison to Spanish system. Students elect one state's law to research weekly problems. 2 s.h. fall. *Reppy*

514. Seminar in Comparative Civil Liberties. A comparison of civil liberties in different countries with special emphasis upon the United States and the Republic of South Africa. 2 s.h. spring. *Dugard*

512. Seminar in Comparative Law. An examination and comparison of the law of selected jurisdictions on certain specific topics. The history, sources, and methods of the civil law will be investigated, discussed, and compared with those of common law countries, with specific emphasis on administrative law and procedure, social welfare programs, and judicial review of administrative action. 2 s.h. spring. *Grzybowski*

505. Seminar in Corporate Planning and Drafting. The student is given hypothetical corporate problems (perhaps taken from the practicing lawyer's desk) on a client's proposed course of action; each problem is designed to require the student to grasp the business situation and goals involved, analyze for pertinent legal principles, plan the transaction to avoid legal business (including taxation) pitfalls, plan the requisite steps to consummate the desired transaction, draft the appropriate papers and present his research. 2 s.h. fall; 2 s.h. spring. *Stolz*

510. Seminar in Criminal Law. Current problems in administering criminal justice, including studies of theory and technique in criminal procedure (investigation, prosecution, and defense of criminal charges), inquiry into basic policy in the use of criminal sanctions for the promotion of public order, consideration of contemporary developments (legislative, judicial, and administrative) in criminal law, and analysis of specific problem areas such as mental responsibility, sexual deviation, attempts, and vicarious liability. 2 s.h. spring. *Livengood*

560. Seminar in Criminal Procedure. Investigation of crime and the police practices, pertinent thereto, including detention and arrest, interrogation, search and seizure; exclusionary rules of evidence; motions for continuance, change of venue, and challenges to the jury; problems of the indigent defendant; discovery problems in criminal trials; post-trial appellate procedures. 2 s.h. fall. *Everett*

515. Seminar in Estate Planning. Seminar devoted to problems and techniques of tax and estate planning. 2 s.h. fall. *Powe*

500. Seminar in the Federal Practice of Civil Rights and Civil Liberties. A combination of advanced constitutional law and federal practice, working through a series of problems to provide: (a) a familiarity with the principal federal statutes (procedural, substantive, and remedial) used in civil rights litigation;

(b) their judicial interpretation and application; and (c) a consideration of frontier constitutional issues. 3 s.h. fall. Van Alstyne

520. Seminar in Internal Union Affairs. The focus of the seminar is on the internal functioning of labor organizations, with particular emphasis on the application of the Labor-Management Reporting and Disclosure Act of 1959 and that segment of federal decisional law under the Labor-Management Relations Act which considers a union's obligations to its membership. Class sessions are topically structured to consider the union's duty of fair representation, its authority to discipline individual members, its obligations, with regard to internal elections and financial integrity, and the limitations upon its demand of loyalty from its membership. Consideration is also given to the relationship of the local union to its international body. 2 s.h. fall. Weistart

563. Seminar in International Organizations. This course explores the principal legal questions, including current controversies, affecting the United Nations and other international organizations. 2 s.h. fall. Larson

525. Seminar in Labor Law. An intensive examination of significant problems in collective bargaining, union-management relations and labor dispute settlement, with emphasis upon the drafting and interpretation of contract clauses, theories and techniques in contract negotiation, grievance handling, voluntary arbitration and other procedures for the adjustment of disputes, comparison of collective bargaining in the public and private sectors, and the interrelation of the legal and economic aspects of labor problems. 2 s.h. fall. Liven-good

356. Seminar in Law and Political Behavior. A study of the legal aspects of political behavior and the various strategies that may be employed to achieve particular social, economic, and political objectives. Laws, governing elections, party affairs, campaign expenditures and voters eligibility will be analyzed. These laws and strategies will be measured against political theory and the processes of value maximization. (Not offered 1974-1975.)

528. Seminar in Legal Issues in Health Care. Beginning with the health care delivery system and the legal problems it presents, the seminar will direct attention to licensing and other controls over physicians and other health personnel, the law of medical malpractice and other mechanisms for assuring quality of care, the role of law in the function of the health care marketplace, and proposals for national health insurance or other fundamental reform. 2 s.h. fall. Havighurst

527. Interdisciplinary Seminar in Medical-Legal-Ethical Issues. A seminar composed of students and faculty from the Medical, Law and Divinity Schools for critical consideration of selected pertinent issues of mutual professional interest. 2 s.h. spring. Gallemore (*Medical*), Shimm (*Law*), and Smith (*Divinity*)

570. Seminar in Military Law. A study of military jurisdiction, the rights of military personnel, the body of both substantive and procedural law that has developed under the Uniform Code of Military Justice; in addition to its other goals, the seminar will seek to develop skills in statutory interpretation and to encourage comparisons between civilian and military criminal law administration. (Not offered 1974-1975.)

571. Seminar in Negotiation. This seminar will be limited to twenty students who will participate in mock counseling and negotiation. The problems



presented will come from various disciplines with emphasis on business contracts and family problems. The purposes are to practice the arts of counseling and negotiating and to become aware of one's patterns of interaction which facilitate or impede effectiveness as a counselor or negotiator. A short paper on a topic associated with the course will be required. The mimeographed reading materials for the course will consist of writings by lawyers, psychiatrists, and psychologists. 2 s.h. fall. *Marschall*

535. Seminar in Organization, Financing, and Governance of Public Schools. This course primarily concerns the organization, governance, and financing (federal, state, and local) of public schools and their relationship to other governmental structures. The purposes of schooling and the balancing of the interests of society, parents, and children are also examined. The various definitions of equal educational opportunity—e.g., the allocation of educational resources, racial imbalance, the problems of classification and teaching of students—are reviewed. Other topics include the issues of community control, vouchers, and other alternatives to the present system. 3 s.h. spring. *Levin*

529. Seminar in Poverty and Law. Lectures and readings cover specific legal problems faced by the indigent in matters of private and public housing, employment, welfare, consumer protection, and in the criminal courts. Topics for research are assigned and papers are presented by participating students. (Not offered 1974-1975.)

530. Seminar in Psychiatry and the Law. An inquiry into the relationship between the science of psychiatry and various facets of civil and criminal law. 2 s.h. fall. *Shimm*

573. Seminar in Racial Discrimination. This seminar examines the legal aspects of the principal areas of racial discrimination—political and legal rights, public accommodations and facilities, education, employment, and housing—with emphasis on recent federal statutes and Supreme Court decisions. 2 s.h. fall. *Larson*

540. Seminar in Sentencing and Corrections. An examination and discussion of post conviction disposition of criminal offenders. (Not offered 1974-1975.)

575. Seminar in Sex Discrimination. The principal forms of sex discrimination are covered, including legal, political, educational, personal, and marital, with the major portion of the seminar concentrating on sex discrimination in employment. 2 s.h. spring. *Larson*

581. Seminar in Tax-Exempt Organizations. A study of the exemption from federal income tax accorded to a variety of public and private organizations and the tax treatment of contributions to such organizations, the public policies underlying the exemption from tax and deductibility of contributions, and the broad new enforcement powers to be undertaken by the Internal Revenue Service. 2 s.h. fall. *Hobbet*

583. Seminar in World Law. The emphasis of this course is on those aspects of national law and international law which have an important influence on weakening or strengthening a world legal order. The course does not duplicate the material in the regular course on International Law. (Not offered 1974-1975.)

Courses in Other Divisions of the University

The courses in other divisions of the University which are listed below will be of particular interest to law students.

Public Policy Sciences 221. Analytical Methods I: Forecasting Consequences of Policy Alternatives. The decision analysis approach as a strategy for policymaking; uses and limitations of deterministic, probabilistic, unitary, and interactive models for guesstimating the consequences of policy alternatives, including modeling techniques for structuring policy problems and statistical techniques for gathering and processing data for models. 3 s.h. fall. *Fischer*

Public Policy Sciences 222. Analytical Methods II: Appraising Consequences of Policy Alternatives. Various methods for appraising and weighing the consequences of policy alternatives, including the uses and limitations of economic utility theory, probabilistic preference theory, time preferences, multiattribute preference trade-offs, cost/effectiveness analysis, cost/benefit analysis, scoring systems, performance indices, objective functions, indifference curves, Pareto optimality, market and shadow prices, willingness to pay consumer's surplus; concludes with a discussion of some formal decision analysis and mathematical programming. Prerequisite: Public Policy Sciences 221. 3 s.h. fall. *Vaupel*

Public Policy Sciences 223. Ethics and Policymaking. The ethical bases of public policymaking; the core values and "biases" of policymaking in America, responsiveness and obligation among public officials, problems in the application and implementation of political norms, dilemmas of value choice and con-

flict. Critical attention will be given both to accepted political and moral norms and to the current state of policy in various substantive areas. 3 s.h. spring. Price

Public Policy Sciences 224. Administrative and Organizational Theory. A behavioral analysis of public organizations with emphasis on the impact of organizational structures, individual needs and motivation, and politics on the formulation and implementation of public policy. 3 s.h. fall. *Hawley*

Public Policy Sciences 340. Public Policy Research Seminar: The Administration of Justice I. An introduction to significant policy issues in the field. Students are expected to engage in, or prepare for, a major research study the content of which will be developed in consultation with the faculty involved in the course. 3 s.h. spring. *To be announced.*



LAW



8

Student Life

The University

Duke University has an enrollment of 9,382 students from all fifty states and many foreign countries. Trinity College, the Graduate School, the Graduate School of Business Administration, the Schools of Divinity, Engineering, Forestry, Law, Medicine, and Nursing, and Duke Hospital are the major components of the University. The University is about two miles from the business district of Durham and is situated on wooded hills constituting part of the 8,000-acre Duke Forest.

Durham, with a population of approximately 100,000, is in the Piedmont region of North Carolina. Although Duke Law School is not located in a major metropolitan area, the resources of the combined Durham-Chapel Hill-Raleigh area approximate those of many urban areas. Each of these cities contains a major university. The physical proximity of Duke to the University of North Carolina, only 8 miles away, and North Carolina State University, twenty-five miles away, makes Chapel Hill and Raleigh readily available for shopping and social and cultural activities. The "Triangle" area has a total combined student population of over fifty-thousand students. A large facility of the Environmental Protection Agency is located in the Research Triangle Park, a developing area south of Durham. Durham is noteworthy among Southern cities for its thriving black business community including the headquarters of a major black insurance company.

Living Accommodations

Housing. The majority of law students, both married and single, live in private, off-campus housing. Apartments in Durham are plentiful and, by

national standards, inexpensive. Good roads and the absence of heavy traffic make commuting to the Law School from a considerable distance easy. This enables students to choose from a wide variety of housing types. A full range of housing from ultra-modern apartments to rustic cottages is located within minutes of the School. Students desiring to live in off-campus housing may obtain from the Assistant Dean's Office in mid-summer a list of similarly situated incoming students with whom they will be able to share housing expenses. Both married and single students desiring to live-off campus should plan to come to Durham one to two weeks early to find housing.

Campus housing in the Graduate Center and in apartments is described in the chapter on Financial Information.

Opportunities to serve on the residential staff in undergraduate dormitories are available. The living accommodations vary in different dormitories, but usually consist of a single room or a two-room apartment. The positions also provide financial assistance. Interested students or spouses should contact the Office of the Dean of Students, 121 Allen Building, Duke University, Durham, North Carolina 27706. Interviews are held in the spring.

Dining Facilities

Dining facilities are located within easy walking distance of the Law School in the Union Building. The cost of food for the academic year will average approximately \$800.00 if a student dines in University cafeterias.

A large number of law students prefer to bring their lunches from home and eat in one of the student lounge areas in the Law School. Vending machines are located in the basement.

Placement Service

Placement of Duke Law School students and graduates is the concern of an active Placement Office located in the Law Building. Its staff is composed of one full-time director, one full-time assistant, and several student assistants. The activities of the Placement Office can be broken down into three general categories: coordination of an extensive on-campus recruiting season, production of the *Placement Bulletin* and other publications designed to introduce the Law School and its students to the legal community, and custodial responsibility for a wealth of materials on legal careers, available positions, bar membership, and other related areas.

The on-campus recruiting season takes place primarily during the fall of the year when about 180 employers send representatives to interview members of the two upper classes. As a result of these interviews, a large number of students in each of these classes receive offers of employment.

Duke was the first law school to initiate a *Placement Bulletin*, a type of publication since adopted by a number of other schools. The *Placement Bulletin*, now in its twenty-fourth edition, contains the pictures and brief resumes of the graduating and second-year students. It is widely circulated among selected law firms, companies, government agencies, and other potential employers.

As the repository for a vast amount of information which is of interest to every student in the Law School, the Placement Office accepts the responsibility of encouraging students to explore the variety of careers available to them and of teaching students about job-hunting as well. Orientation meetings for students in all three classes are conducted by members of the staff, upper-class students, and invited speakers. The information on file in the Office in-

cludes an extensive list of inquiries from employers in all parts of the country who are unable to interview at the Law School. A file of background information is maintained for every employer who has been in contact with the Law School during the past few years.

Finally, it must be remembered that the students themselves are primarily responsible for finding employment. They must be willing to devote a large amount of their time to letter writing and to interviewing, both on and off campus. The students at Duke continue to enjoy great success in obtaining suitable employment in an increasingly tight job market. Almost all students in the upper two classes accept positions either in private practice, government, or other law-related employment by the end of the school year. The market for first year legal clerks has been increasing, but it does not yet approach the size of the market for second year clerks.

Student Health

One of the prerequisites for gaining most from the University experience is a sense of well-being. The aim of the University Health Service is to provide medical care and health advice necessary to help the student enjoy his privilege of being a part of the University community. To serve this purpose, both the University Health Services Clinic and the University Infirmary are available for student health care needs.

The main components of the Health Service include the University Health Services Clinic, located in the Pickens Building on West Campus, and the University Infirmary on the East Campus. Emergency transportation, if required, can be obtained from the Duke Campus Police. Residential staff personnel should be consulted if possible for assistance in obtaining emergency treatment.

The facilities of the University Health Services Clinic are available during both regular and summer sessions to all currently enrolled full-time students. The facilities of the University Infirmary are available during the regular sessions only from the opening of the University in the fall until graduation day in the spring to all currently enrolled full-time students.

All regularly matriculated law students of the University who have paid full tuition are entitled to the student health benefits.

Students are not covered during vacations, and their dependents and members of their family are not covered at any time.

The resources of the Duke University Medical Center are available to all Duke students and their spouses and children. Charges for any and all services received from the Medical Center are the responsibility of the student as are the charges for services received from physicians and hospitals not associated with Duke University.

The Student Mental Health Service is located in the Pickens Building. Under the direction of Dr. W. J. Kenneth Rockwell, it provides evaluations, brief counseling and/or treatment for matters ranging from questions about normal growth and development to the most serious psychiatric disorders.

The University has made arrangements for a Student Accident and Sickness Insurance Plan to cover all full-time students for a twelve month period. For additional fees a student may obtain coverage for a spouse or a spouse and child. Participation in this program is on a waiver basis. The University expects all students to be financially responsible for medical expenses above those covered by the University Student Health Program through the University Accident and Sickness Policy, a private policy, or personal financial resources. Students who have equivalent medical insurance or wish to accept the financial

responsibility for any medical expense may waive the Duke Plan by signing a statement to this effect. Each full-time student in residence must purchase this student health insurance or sign a waiver before his registration is complete. The Student Accident and Sickness Insurance Policy provides protection 24 hours per day during the full 12-month term of the policy for each student insured. Students are covered on and off campus, at home, or while traveling between home and school, and during interim vacation periods. Coverage under the policy begins on the opening day in the fall. Coverage and services are subject to change each year as deemed necessary by the University in terms of costs and usage.

Professional and Honorary Organizations

Order of the Coif. The Order of the Coif is a national legal scholarship society, with a local chapter at Duke University School of Law. Its purposes are "to foster a spirit of careful study and to mark in a fitting manner those who have attained a high grade of scholarship." Election is restricted to the upper 10 percent of the graduating class who have attained the most distinguished academic records in their law school work.

The Duke Bar Association. The Duke Bar Association coordinates the professional, social, and other extracurricular activities of the student body. The Association resembles in its composition and purpose both a university student government and a professional bar association. It manages the speakers program, publicizes Law School activities, and sponsors athletic and social programs. Dues are \$5.00 per semester, payable at registration.

Legal Research Program. The Legal Research Program, supervised by a student editorial board, provides second and third year students with an opportunity to prepare legal memoranda on actual problems submitted by practicing lawyers, judges, or legislative committees. The program also assists in providing representation to indigents in appeals from denials of petitions for habeas corpus in the United States Court of Appeals for the Fourth Circuit. The briefs are written by the students under the supervision of a member of the faculty.

Moot Court Board. The Moot Court Board is comprised of second and third year students who are chosen on the basis of their performance in intramural Moot Court competition. The Board supervises the Hardt Cup and the Dean's Cup competitions. In addition, the Board provides personnel for teams entering intercollegiate competition.

International Law Society. The Duke International Law Society provides an annual program for examining the application of international law to world problems. Through a series of lecture discussions in the fall called "A Short Course in International Law" and by featuring distinguished speakers in the field throughout the year, the society provides its members the opportunity to make contact with the men and ideas that are shaping the development of international law.

Other activities include participation in the annual Philip C. Jessup International Law Moot Court competition, attendance at conferences sponsored by the Association of Student International Law Societies, and sponsorship of a biennial conference on a selected topic of international significance. Membership is open to all law students with dues of \$5.00 per annum.

Women Law Students. Women Law Students serves as a central organization for united action in meeting the problems which women encounter in the

legal profession and endeavors to promote cooperation and friendship among women law students. The organization sponsors several projects including conferences, work with women in the penal system, and lobbying for legislation favorable to women in North Carolina. The organization also works with women's groups in other law schools to improve the position of women in the legal profession at the national level.

The Crockett Society. Black law students have organized the Crockett Society to address the unique problems faced by black people within and without the Law School. The local aim of the group is to coalesce and amplify the goals of its members and provide a totally responsive student organization to aid the individual black law student in his career at Duke University.

American Bar Association's Law Student Division. Duke Law School is one of over one hundred participating law schools in the American Bar Association's Law Student Division. Formed only six years ago, the Division is the only national group representing law student's views within the American Bar Association.

A member of the Fourth Circuit, along with the nine other schools in Virginia, West Virginia, and North and South Carolina, Duke has played a strong leadership role in the Circuit as well as on the national level of the Division.

Locally, the Law Student Division has begun promotion of new clinical legal education programs, among which is its "Night Rider" project wherein students accompany policemen on their appointed patrols. Other areas of active concern have been the third year practice rule in North Carolina and reform in penal institutions. In addition, there is communication between law schools on the circuit and national levels, benefiting each through the experience of others.

Legal Fraternities. The two legal fraternities at Duke are Hughes Inn of Phi Delta Phi and Wiley Rutledge Chapter of Phi Alpha Delta. During the academic year these organizations sponsor luncheons and other meetings which feature topics of professional interest and several social activities.

Student Advocacy Club. An affiliate of the American Trial Lawyers Association (ATLA), the Student Advocacy Club was founded to foster student interest in litigation. The club, with the cooperation of local attorneys and judges, sponsors monthly meetings to demonstrate some of the fundamentals and techniques of trial work, as well as an annual exposition put on by the ATLA.

In addition, upperclass members have the opportunity to work with practicing attorneys, preparing cases and assisting in the courtroom, which provides valuable clinical experience.

National Lawyers Guild. The Guild is a national association of lawyers, law students, legal workers, and jailhouse lawyers which faces the need for change in our power structure and governing process. The Duke chapter seeks to provide an alternative to the academic approach to law by sponsoring opportunities for students to place their skills in the service of people needing representation for the effective assertion of their legal rights. Examples of 1974 projects include assisting in PIRG's intervention in a utility rate hearing and recycling the Law Library's discarded materials into a jailhouse library.

Devil's Advocate. The *Devil's Advocate* is the weekly newspaper of the students of the Law School. The aim of the *Advocate* is to combine a variety of articles and editorials concerning all aspects of law school life with satirical and humorous articles, anecdotes, caricatures, and cartoons to provide a light-hearted, yet thought-provoking break in the weekly routine. The newspaper, which is unique among law school papers, has consistently proved to be the

most popular voluntary activity at the Law School. The *Devil's Advocate* staff consists of an editor-in-chief, assistant editors, and reporters and contributors. All students, faculty, and administrators are invited to participate.

Employment Opportunities

The study of law is demanding. It is designed to occupy the full time of the student and calls for his best. It is unwise for a student to dilute his efforts by outside work, especially during the critical first year of study.

For those who find some outside earnings necessary to meet the expense of studying law at Duke, arrangements have been made to provide some part-time employment in the Law School. A number of positions in the Law Library are filled by law students. Students are often employed in their second and third years as research assistants for faculty members. The University maintains a general placement office to aid in finding employment and several law students serve as undergraduate residence advisers, if they have been at Duke one year or have previously held such positions.

The opportunities for employment in the University and surrounding community are good for spouses of law students who are teachers, computer programmers, secretaries, or nurses. Other types of desirable positions are also available. The Dean's Office maintains a list of superintendents of schools in nearby districts which is available upon request. The University Personnel Office and the Medical Center Personnel Office assist interested persons in locating suitable employment on campus.

Book Exchange

Before the beginning of each semester, used texts may be purchased for considerably less than new texts. The Duke Bar Association administers the sale of used law books in the Law School basement.

Bookstores

Duke Law School students may purchase law school texts at the University Bookstore in the Union Building on campus or at The Book Exchange located in downtown Durham at 107 Chapel Hill Street.

Other On-Campus Facilities

Additional facilities on campus available to students include the Duke Station Post Office, a sundries store, a barber shop, a bank, and a men's store, all located in the basement of the Union Building.

Entertainment and Recreation

Within a short distance of the campus are facilities for golf, horseback riding, and woodland hiking. Students of the Law School are entitled to use the University gyms, tennis courts, swimming pools, golf course, and similar facilities. North Carolina's mild climate makes golf, tennis, and sailing possible much of the school year. Kerr Lake, only an hour north of Durham, is ideal for Sunfish sailing. Other opportunities for physical activity are available in the Intramural Program, as well as through such activity groups as the outing, sailing, and cycling clubs. The North Carolina ski slopes are about three and a half hours to the west, the Outer Banks the same distance to the east.

University athletic contests are held on the University grounds at various times during the academic year. Duke is a member of the Atlantic Coast Conference. Concerts, recitals, lectures, and plays are presented frequently on campus.

Prizes and Awards

Several academic prizes and awards have been established by the Law School or are sponsored by individuals or organizations to recognize general academic excellence or high achievement in specific areas. The following list, though not complete, will indicate some of the academic prizes and awards available each year to law students who distinguish themselves.

American Jurisprudence Prize Awards. American Jurisprudence Book awards are made to the student in each course who obtains the highest scholastic grade in that course. These book awards are sponsored yearly by the Lawyers Cooperative Publishing Company.

Corpus Juris Secundum Award. This award, sponsored by the American Law Book Company, is made to the student in each class who has made the most significant contribution to overall legal scholarship.

Hornbook Series Award. This award, sponsored by the West Publishing Company, is made to the student in each class who has obtained the highest scholastic average in his class for the year.

Nathan Burkan Copyright Award. Each year the Nathan Burkan Memorial Competition offers an award of \$250 to the student who writes the best paper on Copyright Law.

Prentice-Hall Tax Prize. An award, sponsored by Prentice-Hall, Inc., is made to the graduating senior who has made the most outstanding record in the courses in federal taxation.

Student Advocacy Award. This award, sponsored by the International Academy of Trial Lawyers, is made to the graduating senior, selected by the faculty, who has demonstrated the most outstanding ability in courtroom advocacy.

United States Law Week Award. This award is made to a graduating senior selected by the faculty as the student who has made the greatest academic progress during his final year of study. It is sponsored by the Bureau of National Affairs, Inc. and consists of a year's complimentary subscription to *United States Law Week*.

Will Drafting Contest. In order to encourage good draftsmanship of wills, the North Carolina National Bank each year conducts a will drafting contest which is open to all law students in the State of North Carolina who are not already members of the Bar. Prizes of \$50.00 each are awarded for the two best entries from each law school. The best of these six entries receives an additional award of \$150.00. The second best entry receives an additional \$50.00 prize.

Willis Smith Award. This award is presented annually to the member of the graduating class who has achieved the highest academic average for his three years of law study. The award is sponsored by the family of United States Senator Willis Smith, a deceased alumnus, and consists of a set of legal volumes selected by the recipient of the award.



Appendix A

Former Schools of Duke Law Students

Adelphi University	1	Harpur College	1
Agnes Scott College	1	Harvard University	7
Albion College	1	Haverford College	1
Albright College	1	Hobart College	1
Allegheny College	2	Howard University	1
The American University	2	Illinois State University	1
Arizona State University	1	Indiana University	8
Auburn University	1	Johns Hopkins University	1
Baylor University	2	Kansas State University	1
Beloit College	1	Kirkland College	1
Bob Jones University	1	Knoxville College	1
Boston College	3	Lawrence University	1
Boston University	2	Lehigh University	4
Bowling Green State University	2	Louis and Clark College	1
Brandeis University	2	Louisiana State University	2
Brigham Young University	5	Lowell Technological Institute	1
Brown University	2	Loyola University—Chicago	1
Bryn Mawr College	2	Macalester College	1
Bucknell University	5	Marshall University	1
Butler University	1	Massachusetts Institute of Technology	2
California State College at Los Angeles	1	Miami University	2
Calvin College	1	Michigan State University	2
Campbell College	1	Monmouth College	1
Carleton College	2	Morehouse College	1
Centre College	2	Mount Union College	1
Ciena College	1	Mount Holyoke College	1
The Citadel	2	New Mexico State University	1
Claflin College	1	New York University	3
Claremont Men's College	4	Northeast Louisiana State College	1
Clarion State College	1	North Carolina State University	4
Clarke College	1	Northern Illinois University	1
Colgate University	4	Northwestern University	6
College of Charleston	1	Oberlin College	1
College of the Holy Cross	2	Occidental College	5
College of William and Mary	2	Ohio State University	7
Columbia University	5	Ohio Wesleyan University	2
Concordia College	2	Pennsylvania State University	6
Cornell College	1	Pomona College	2
Cornell University	4	Princeton University	8
Dalhousie University of Canada	1	Providence College	2
Dartmouth College	9	Queens College of the City University of New York	1
Davidson College	4	Radcliffe College	1
DePaul University	1	Rice University	2
Dickinson College	2	Saint Joseph's College	2
Drake University	1	Saint Olaf College	2
Drexel University	1	Saint Peters College, New Jersey	1
Duke University	31	Scripps College	1
East Carolina University	2	Seattle University	1
East Tennessee State University	1	Seton Hall University	1
Emory University	5	Southern Illinois University	1
Florida State University	5	Southwest Missouri State College	1
Fordham University	1	Southwestern at Memphis	1
Franklin and Marshall College	1	Stanford University	8
Furman University	2	State University of New York at Albany	1
George Washington University	1	State University College of New York at Brockport	1
Georgetown University	1	State University of New York at Binghamton	2
Georgia State University	1		
Gettysburg College	1		
Goucher College	1		
Hampton Institute	1		

State University of New York at Buffalo	4	University of North Carolina at Greensboro	1
Syracuse University	2	University of Notre Dame	5
Temple University	1	University of Oklahoma	1
Tennessee State University	1	University of Oregon	1
Texas Christian University	1	University of Pennsylvania	8
Texas Technical University	1	University of Rochester	4
Transylvania College	1	University of South Carolina	2
Trinity College—Connecticut	2	University of South Dakota	1
Trinity College—Washington, D.C.	1	University of South Florida	1
Trinity University	1	University of Southern California	4
Tulane University	3	University of Tennessee	5
Union College	4	University of the South	1
United States Air Force Academy	3	University of Toledo	1
United States Military Academy	2	University of Utah	1
University of Alabama	1	University of Washington	2
University of California at Los Angeles	2	Ursinus College	1
University of California at San Diego	1	Vanderbilt University	2
University of California at Santa Barbara	1	Villanova University	1
University of Chicago	1	Wabash College	8
University of Cincinnati	1	Wake Forest University	3
University of Dallas	1	Washington and Jefferson College	1
University of Delaware	1	Washington and Lee University	2
University of Florida	6	Washington State University	1
University of Georgia	3	Washington University	1
University of Illinois	3	Wellesley College	3
University of Kansas	3	Wesleyan University	2
University of Kentucky	4	Westminster College	1
University of Maine	2	West Virginia University	3
University of Maryland	5	Western Kentucky University	1
University of Miami	2	Western Michigan University	1
University of Michigan	5	Wheaton College	3
University of Minnesota	1	Whitman College	3
University of Mississippi	1	Willamette University	2
University of Missouri	7	William Jewell College	1
University of Nebraska	4	Williams College	1
University of North Carolina at Chapel Hill	19	Wittenburg University	3
		Wofford College	3
		Yale University	10





Appendix B

Home States of Duke Law Students

Alabama	8	Nebraska	2
Alaska	1	New Hampshire	1
Arizona	6	New Jersey	16
Arkansas	2	New Mexico	2
California	26	New York	44
Colorado	1	North Carolina	50
Connecticut	8	North Dakota	1
Delaware	1	Ohio	24
District of Columbia	8	Oklahoma	2
Florida	22	Oregon	5
Georgia	15	Pennsylvania	27
Hawaii	1	Rhode Island	2
Illinois	20	South Carolina	18
Indiana	15	South Dakota	2
Iowa	3	Tennessee	7
Kansas	6	Texas	3
Kentucky	10	Utah	3
Louisiana	4	Vermont	1
Maine	3	Virginia	12
Maryland	20	Washington	6
Massachusetts	10	West Virginia	5
Michigan	10	Wisconsin	6
Minnesota	8	Australia	1
Mississippi	2	Canada	4
Missouri	12		
Montana	1	Total Student Body:	467

Appendix C

First Year Class (Class of 1976)

Acker, James Robert, B.A. (Indiana University), Franklin, Michigan
Adcock, David Brooks, B.A. (University of North Carolina), Durham, North Carolina
Allman, Celia Lee, B.A. (Duke University), Winston-Salem, North Carolina
Allston, Allard Albert, Jr., B.A. (Yale University), Darlington, South Carolina
Alvarez, Margaret Toms, B.A. (University of Florida), Miami Lakes, Florida
Ament, Mark Steven, B.A. (Northwestern University), Louisville, Kentucky
Anthony, Harris Robert, B.A. (Colgate University), Lauderhill, Florida
Arnwine, Barbara Ruth, B.A. (Scripps College), Compton, California
Bailey, Todd Hunter, B.A. (Miami University), New South Wales, Australia
Barnes, Linna May, B.A. (University of Georgia), Athens, Georgia
Beeler, John Cole, B.A. (Dartmouth College), Indianapolis, Indiana
Beggs, Robert John, B.A. (Pennsylvania State University), New Kensington, Pennsylvania
Bland, Paul Cornelious, B.A. (Howard University), M.B.A. (Harvard University), Petersburg, Virginia
Brockway, James Russell, B.A. (Dartmouth College), Phoenix, Maryland
Bruce, David Alan, B.A. (Baylor University), Tempe, Arizona
Buck, Peter Coleman, B.A. (Duke University), Durham, North Carolina
Busch, John Arthur, B.A. (Wabash College), Indianapolis, Indiana
Butner, Fred Raymond, A.B. (Duke University), Winston-Salem, North Carolina
Caffrey, Denise, B.A. (University of North Carolina at Greensboro), Huntsville, Alabama
Callender, John Francis, B.A. (Davidson College), M.A. (University of North Carolina), Jacksonville, Florida
Carter, Betsy Ida, B.A. (Wittenberg University), Jefferson, Ohio
Casey, Michael Ralph, B.A. (Southern Illinois University), M.A. (Stanford University), Rock Hill, South Carolina
Claybrook, Frederick William, B.A. (Wheaton College), Chagrin Falls, Ohio
Coburn, David Keith, B.A. (Florida State University), Birmingham, Alabama
Cochran, Linda Jean, B.S. (University of Oregon), North Bend, Oregon
Cockle, John Robert, B.A. (University of Nebraska), Milwaukee, Wisconsin —
M.B.A.-J.D. Joint Degree Program
Coe, Kenneth Sears, Jr., B.A. (University of North Carolina), Charlotte, North Carolina
Cohen, Jay Lindsey, B.A. (Texas Christian University), Colonial Springs, New York
Connors, John Joseph, B.A. (Villanova University), Aldan, Pennsylvania
Cordiano, Dean M., B.A. (State University of New York-Binghamton), Brooklyn, New York
Crumwell, Wayne Everett, B.A. (Davidson College), M.B.A. (University of Wisconsin), Portsmouth, Virginia
Cummins, Walter Marty, B.A. (Ohio State University), Columbus, Ohio
Davids, James Alan, B.A. (Calvin College), Palos Heights, Illinois
Deaton, Winford Robinson, Jr., B.S. (University of Tennessee), Valdese, North Carolina
Diaz, Benito Humberto, B.A. (Saint Peters College, New Jersey), West New York, New Jersey
Drucker, James Douglas, A.B. (State University of New York-Buffalo), East Meadow, New York
Dugan, Daniel James, B.A. (Saint Josephs College), Maple Shade, New Jersey
Dye, Dana Lloyd, B.A. (Wake Forest University), Honaker, Virginia
Edwards, Lonzy F., B.A. (Knoxville College), Sparta, Georgia
Elder, Michael Allen, B.A. (North Carolina State University), Durham, North Carolina —
M.B.A.-J.D. Joint Degree Program
Ellwell, Douglas Moore, B.A. (Claremont Men's College), Pomona, California
Embree, Glenn Mitchell, B.A. (University of Kentucky), Glendale, Kentucky
Etcheverry, Raymond John, B.S. (University of Utah), Ogden, Utah
Evans, Joseph William, B.A. (University of Kentucky), Lexington, Kentucky
Everett, Ralph Bernard, B.A. (Morehouse College), Orangeburg, South Carolina
Feagles, Prentiss Eric, B.A. (Cornell University), Great Barrington, Massachusetts
Finkelstein, James Norman, B.A. (University of Pennsylvania), Johnstown, Pennsylvania
Fischer, Mark Stephen, B.A. (Duke University), Pelham Manor, New York
Flavin, John Richard, B.S. (United States Air Force Academy), Webber Groves, Missouri
Fleischer, James Sidney, B.A. (Dartmouth College), Youngstown, Ohio
Frandsen, Russell Mackay, B.A. (Brigham Young University), Centerfield, Utah
Gearreald, Karen Louise, B.A. (Agnes Scott College), Ph.D. (Harvard University), Norfolk, Virginia
Gepford, Daniel William, B.A. (College of William & Mary), Fanwood, New Jersey
German, Robert Andrew, B.A. (East Carolina University), Silver Spring, Maryland
Gesch, Gary Richard, B.A. (University of Southern California), La Habra, California

Gontrum, John Bernard, B.A. (Duke University), Kingsville, Maryland
 Griffeth, Jack Dalrymple, B.A. (Wofford College), Greenville, South Carolina
 Hackbarth, Glenn Martin, B.A. (Pennsylvania State University), Pittsburgh, Pennsylvania
 Halvorson, Eric Hansel, B.S. (Bob Jones University), Green Bay, Wisconsin
 Hansen, Eric Peter, B.A. (Saint Olaf College), Stillwater, Minnesota
 Hanson, Edward Marshall, Jr., B.A. (Duke University), Wellesley, Massachusetts —
 M.P.P.S.-J.D. Joint Degree Program
 Hanson, Thomas Arthur, B.A. (Ohio State University), Alliance, Ohio
 Heath, Thomas Hunter, B.A. (Emory University), Birmingham, Alabama —
 M.P.P.S.-J.D. Joint Degree Program
 Huffman, Byron Lane, B.A. (University of North Carolina), Asheville, North Carolina
 Huitt, Jimmie Lee, Jr., B.A. (Ohio State University), Los Angeles, California—M.B.A.-J.D.
 Joint Degree Program
 Hunt, Kenneth Charles, B.S. (University of Michigan), Kalamazoo, Michigan
 Johnson, Bruce Edward, B.A. (Harvard University), Columbus, Ohio —
 M.P.P.S.-J.D. Joint Degree Program
 Johnson, William Bruce, B.A. (Duke University), Annandale, Virginia —
 M.B.A.-J.D. Joint Degree Program
 Kahn, Peter Jonathan, B.A. (Yale University), West Hartford, Connecticut
 Kasper, Robert Joseph, B.A. (Stanford University), Menlo Park, California—M.B.A.-J.D. Joint
 Degree Program
 Kelsey, Reeve Withrow, B.A. (Washington & Lee University), Toledo, Ohio
 Kizziar, James Herndon, Jr., B.A. (Ohio Wesleyan University), Fairborn, Ohio
 Klein, Michael Arnold, B.A. (University of Rochester), Syracuse, New York
 Kolkin, Mitchell, B.A. (University of Pennsylvania), Brinklow, Maryland
 Kutteh, Constantine Hanna, B.A. (Wake Forest University), Statesville, North Carolina
 Kwiat, David, B.A. (Dalhousie University of Canada), Montreal, Quebec, Canada
 Lackey, Thomas Landis, B.S. (University of Maryland), Laurel, Maryland
 Lamb, Philip Allen, B.S. (University of Nebraska), Anselmo, Nebraska
 Lehmann, Wendy Evans, B.A. (Syracuse University), M.A. (New York College at Oneonta) Oneonta,
 New York
 Lewis, Martina Theresa, B.A. (The American University), Washington, D. C.
 Lynch, Paul Barry, B.A. (Trinity College-Connecticut), Old Greenwich, Connecticut
 McCorry, Robert Edward, B.S. (Boston College), Pawtucket, Rhode Island
 McFerrin, John Thomas, B.A. (University of Kentucky), Barbourville, Kentucky
 Magill, Thomas Davis, B.A. (Dickinson College), Danville, Pennsylvania
 Mann, Kent Lawrence, A.B. (Dartmouth College), Allentown, Pennsylvania
 Marion, Joseph Ward, B.A. (Duke University), Winston-Salem, North Carolina
 Markham, Arlinda Faye, B.A. (College of Charleston), Hanahan, South Carolina
 Marshall, Kenneth Lawrence, B.A. (Brown University), Atlanta, Georgia
 Mask, Johnnie William, Jr., B.A. (Adelphi University), Corona, New York
 Melahn, Lewis Eugene, B.A. (University of Missouri), Mexico, Missouri
 Meringer, Gary Edward, B.S. (University of Pennsylvania), Lake Hiawatha, New Jersey
 Mims, Carole Yvonne, B.A. (Wellesley College), Hendersonville, North Carolina
 Minds, Arthur James, B.S. (Pennsylvania State University), Ramey, Pennsylvania
 Mits, Melinda Aki, B.A. (University of Southern California), Phoenix, Arizona
 Moore, Albert Garver, B.A. (Wake Forest University), Whitehouse, New Jersey —
 M.B.A.-J.D. Joint Degree Program
 Mudrick, David Phillip, B.S. (Kansas State University), Ottawa, Kansas
 Murphy, Steven Dennis, B.A. (Wabash College), Hartford City, Indiana
 Nakatsui, Kiyoshi, B.A. (University of Southern California), Los Angeles, California
 Orta, Miguel Augustine, B.A. (Florida State University), Miami Beach, Florida
 O'Shields, Herbert Joseph, B.A. (University of South Carolina), Spartanburg, South Carolina
 Parry, Griffith Townsend, B.A. (Trinity University), Houston, Texas
 Pazuniak, George L., B.A. (Temple University), Philadelphia, Pennsylvania
 Peirce, Ellen Rust, B.A. (Bryn Mawr College), Washington, D. C.
 Perley, Michael Francis, B.A. (College of the Holy Cross), Hamburg, New York
 Perry, Sarah Elizabeth, B.A. (Cornell College), Redfield, South Dakota
 Peters, William Lee, B.S. (West Virginia University), M.S. (North Carolina State University),
 Clarksburg, West Virginia—M.B.A.-J.D. Joint Degree Program
 Peterson, John Wayne, B.A. (Seattle University), Ketchikan, Alaska
 Post, David Bruce, B.S. (University of North Carolina), Salisbury, North Carolina
 Price, Glenn David, B.A. (Harvard University), M.Sc. (London School of Economics), Roslyn,
 Pennsylvania
 Rody, Stephen Elston, B.A. (Davidson College), Tallahassee, Florida



Rock, Jamie Hingle, B.S. (Louisiana State University), Durham, North Carolina
 Rooks, David Monroe, III, A.B. (University of North Carolina), Asheboro, North Carolina
 Salzman, Anthony David, B.A. (Yale University), Washington, D. C.
 Schiller, Marvin, B.A. (University of Miami), Ph.D. (University of North Carolina), Upper Marlboro,
 Maryland
 Schuckman, Robert Alan, B.A. (Indiana University), Glenview, Illinois
 Schuerman, Robert Edward, B.A. (University of Cincinnati), Cincinnati, Ohio
 Schwartz, Aron Morris, B.A. (University of Rochester), Clifton, New Jersey
 Schwartz, Eugene Michael, B.A. (State University of New York-Binghamton), Budd Lake,
 New Jersey
 Scolton, Bruce Sheridan, B.A. (Dartmouth College), Ashville, New York
 Scutt, Robert Carl, B.A. (Union College), Newark, New York
 Shaber, Steven Mansfield, B.A. (Wabash College), Ft. Wayne, Indiana
 Silverman, Sheri Helene, B.A. (Kirkland College), Great Neck, New York
 Smith, Daniel Lynn, B.A. (University of Kansas), Pleasanton, Kansas
 Smith, Harry Joseph, B.A. (East Tennessee State University), Laurel Bloomery, Tennessee
 Smith, Rhonda Leigh, B.S. (University of Kansas), El Dorado, Kansas
 Smith, Stephen Page, B.A. (Western Kentucky University), Bowling Green, Kentucky
 Stepanenko, George Jerry, B.A. (University of Maryland), Silver Spring, Maryland
 Stephenson, Kathleen Ann, B.A. (Clarke College), M.A. (Memphis State University), Maryville,
 Missouri
 Stuart, Debra Jo, B.A. (Duke University), Greenville, South Carolina
 Tally, Robert Taylor, B.A. (Duke University), Fayetteville, North Carolina
 Tanford, James Alexander, B.A. (Princeton University), Durham, North Carolina
 Taylor, George Wellford, Jr., B.A. (University of North Carolina), Durham, North Carolina
 Tepker, Harry F., Jr., B.A. (Claremont Men's College), Los Angeles, California
 Thompson, Gary DuBois, B.A. (Washington & Jefferson College), Pitman, New Jersey
 Thompson, Stephen Russell, B.A. (University of North Carolina), M.A. (School of International
 Affairs, Carleton University), Albermarle, North Carolina
 Tousey, Clay Burford, Jr., B.S. (University of Florida), Jacksonville, Florida
 Tucker, Samuel Eaph, B.A. (Williamette University), Weston, Oregon
 Van Horn, Daniel Franklin, B.A. (Allegheny College), Bedford, Pennsylvania
 Vogel, Edward Walter, B.S. (University of Florida), Lakeland, Florida
 Weaver, Keith Wayne, B.A. (University of Mississippi), Mountain Creek, Alabama
 Weber, Robert Carl, B.A. (Yale University), Chardon, Ohio
 Weintraub, Richard N., B.A. (Brandeis University), Florence, South Carolina
 Whittington, William Edward, IV, B.A. (Wheaton College), Birmingham, Michigan
 Wiggins, Charles Kenneth, B.A. (Princeton University), M.B.A. (University of Hawaii),
 Milledgeville, Georgia
 Wilson, Charles Michael, B.S. (North Carolina State University), Winston-Salem, North Carolina
 Windt, Allan David, B.S. (Union College), Liberty, New York
 Winegeart, Branch Lamar, III, B.A. (Washington & Lee University), Jacksonville, Florida
 Winter, Gail Henrietta, A.B., B.S. (University of Missouri), Warrenton, Missouri
 Zaccaria, James Michael, B.S. (Yale University), Rochester, New York

Second-Year Class (Class of 1975)

Adams, Margaret Irene, B.A. (Stanford University), White Bear Lake, Minnesota
 Allen, Thomas Atherton, A.B. (Harvard University), Baltimore, Maryland
 Alvarez, Carlos, B.A. (University of Florida), Miami, Florida
 Anderson, Sara Beeland, B.A. (Emory University), Greenville, Alabama
 Babich, Lawrence Harris, B.A. (Ohio State University), Marion, Ohio
 Bachelder, Jon Paul, B.A. (Miami University), Findlay, Ohio
 Bartelt, Robert Harry, B.S. (Campbell College), Fayetteville, North Carolina
 Baxter, Richard James, B.A. (Bucknell University), Poland, Ohio
 Baxter, Robert Andrew, A.B. (University of Notre Dame), Oceanport, New Jersey
 Beall, Kenneth Warren, B.A. (Michigan State University), Stillwater, Minnesota
 Bendig, Charles Herman, B.S.B.A. (Ohio State University), Warren, Ohio
 Bentley, Janet Fraser, B.A. (Wellesley College), Montreal, Quebec, Canada
 Berens, Kelvin Charles, B.A. (University of Nebraska), Dodge, Nebraska
 Berman, Gary Keith, B.A. (University of Pennsylvania), Silver Spring, Maryland
 Bihn, George Frederick, III, A.B. (Princeton University), Abington, Pennsylvania
 Bishop, Jeffrey Lynn, B.A. (Rice University), West Point, Mississippi
 Bizzell, Kinchen Carey, B.A. (North Carolina State University), Goldsboro, North Carolina
 Bogue, Richard Alan, B.A. (Union College), Chevy Chase, Maryland

Britain, James Edward, B.A. (Washington State University), Lynwood, Washington
 Brown, Frederick Albert, II, B.A. (Bucknell University), Philadelphia, Pennsylvania
 Burnett, James Thomas, B.A. (Whitman College), Merver Island, Washington
 Calderwood, Terry Walter, B.A. (Boston University), Camden, Maine
 Carll, James Howell, B.A. (Bucknell University), Lewisburg, Pennsylvania
 Caudill, Franklin Terrell, B.A. (Harvard University), Charleston, West Virginia
 Christensen, Bruce Allen, B.A. (Drake University), Redfield, South Dakota
 Clasbey, Susan Denise, A.B. (Indiana University), Vinton, Virginia
 Colbert, Lawrence Davis, B.S. (Drexel University), Media, Pennsylvania
 Combs, Jack M., Jr., B.A., M.B.A. (University of Kentucky), Louisville, Kentucky
 Cousar, Mary Young, B.A. (Wellesley College), Jacksonville, Florida
 Dana, Frank Johnstone, B.A. (Davidson College), Columbia, South Carolina
 Davis, Thomas Phillip, A.B. (University of Southern California), North Hollywood, California
 DeBaets, Timothy Joseph, B.A. (Columbia University), South Bend, Indiana
 Dennis, George, B.A. (Lehigh University), Williston Park, New York
 Drewry, Eric Boleyn, A.B. (Princeton University), Newark, Delaware
 Duncan, Allyson Kay, B.S. (Hampton Institute), Durham, North Carolina
 Dykstra, Mark Thomas, B.A. (Wabash College), Bremen, Indiana
 Edwards, Sandra Schneider, A.B., M.S. (Indiana University), Greensboro, North Carolina
 Engle, Clement Parker, B.A. (Yale University), Bryn Mawr, Pennsylvania
 Fairchild, Roger Charles, B.S. (Columbia University), Manlius, New York
 Fering, Robert Best (University of Minnesota), Sleepy Eye, Minnesota
 Fink, Michael Fabian, B.A. (Tulane University), New Orleans, Louisiana
 Finkelstein, Julius Louis, B.S. (Columbia University), Palo Alto, California
 Fogle, James Lee, B.A. (Whitman College), Aberdeen, Washington
 Franklin, David Bruce, A.B. (Stanford University), El Cajon, California
 Fukushima, Paul Jay, B.A. (Pomona College), Los Angeles, California
 Gambill, Cromwell Cleveland, B.A. (Transylvania College), Lexington, Kentucky
 Gilbride, Mary Helen, A.B. (Trinity College-Washington, D.C.), New York, New York
 Goldman, Nathan Carliner, B.A. (University of South Carolina), Dillon, South Carolina
 Goumas, Stanley, A.B., M.A. (University of Chicago), San Francisco, California
 Graham, Oscar Mattison, Jr., B.S., M.C.R.P. (University of North Carolina), Laurinburg,
 North Carolina
 Hawkins, Allan Reese, B.A. (Concordia College), Jamestown, North Dakota
 Henry, Robert Jason, B.A. (Yale University), Vancouver, British Columbia, Canada
 Hildebrandt, Stephen Austin, A.B. (Harvard University), Elm Grove, Wisconsin
 Hoebet, Ronald Harold, B.A. (Willamette University), Portland, Oregon
 Hohnbaum, James Lloyd, B.A. (Indiana University), Hiawatha, Kansas
 Howell, John Aubrey, A.B. (Duke University), Alexandria, Virginia
 Hunsaker, Keith Allen, Jr., A.B. (University of California), Los Angeles, California
 Hurder, Alex Jay, A.B. (Harvard University), Champaign, Illinois
 Jenkins, Eleanor Ruth, B.A. (New York University), Brooklyn, New York
 Johnson, William Henry, B.A. (Claflin College), Orangeburg, South Carolina
 Johnstone, Irvine Blakeley, III, B.A. (Lehigh University), Mountainside, New Jersey
 Joyce, Richard Alan, B.A. (University of Maine), South Portland, Maine
 Kable, William Sanderson, B.A. (Johns Hopkins University), M.A., Ph.D. (University of Virginia),
 Columbia, South Carolina
 Keller, John Kistler, A.B. (Indiana University), Indianapolis, Indiana
 Kerber, David Walter, B.S. (United States Air Force Academy), Waukesha, Wisconsin
 Kernodle, John Robert, Jr., B.A. (Duke University), Burlington, North Carolina
 Kieffer, Stephen Paul, B.A.B.S. (The American University), Enid, Oklahoma
 Kievit, Robert Warren, B.S. (Lehigh University), Pensacola Beach, Florida
 Kinney, Harry Craig, B.S. (Yale University), Columbus, Indiana
 Klein, Howard Judah, B.S. (Massachusetts Institute of Technology), Poughkeepsie, New York—
 M.P.S.-J.D. Joint Degree Program
 Kohler, Charles Walter, B.S. (Ohio State University), Toledo, Ohio
 Koman, Alan James, B.A. (Cornell University), East Point, Georgia
 Layer, Wendy Jeanne, B.A. (Occidental College), Sun Valley, California
 Leary, Denise, A.B. (Boston University), Washington, D.C.
 Leban, Michael Frank, B.A. (Harpur College), Rego Park, New York
 Lieberman, Marcia Joan, A.B. (Indiana University), Chicago, Illinois
 Lunsford, Douglas Lee, B.A. (New Mexico State University), Las Cruces, New Mexico
 Lybrand, James Austin, IV, A.B. (University of North Carolina), Greensboro, North Carolina
 Lynch, Gary Grant, B.A. (Syracuse University), Syracuse, New York
 Maddox, Lola Pearl, B.S. (Illinois State University), Alton, Illinois

Mann, Thomas Nelson, B.A. (University of Missouri), Kirkwood, Missouri
 Martin, Charles George Gordon, A.B. (Occidental College), Glendale, California
 Martin, William Earle, B.A. (Occidental College), Paradise Valley, Arizona
 Marusak, Alex Louis, B.A. (University of Dallas), Ph.D. (University of Tennessee), Ennis, Texas
 May, Kenneth Rodney, B.A., M.A. (University of Florida), North Palm Beach, Florida
 McCulloch, Elizabeth, Bachelor of General Studies (University of Michigan), Ann Arbor, Michigan
 McDonald, Hugh Ranald, A.B. (University of California), Los Angeles, California
 McGuane, Thomas Fitzgerald, A.B. (Dartmouth College), Lowell, Massachusetts
 McLeod, John Bowman, B.A. (Wofford College), Orangeburg, South Carolina
 Mertzluft, James William, B.A. (University of Notre Dame), Akron, Ohio - M.B.A.-J.D. Joint Degree Program
 Metzner, Margot Andrea, B.A. (Northwestern University), Madison, Wisconsin
 Michael, Mark Anthony, B.S. (Providence College), Columbia, South Carolina
 Mihelich, Jean Marie, B.A. (Macalester College), Hibbing, Minnesota
 Miller, John Randolph, A.B. (Duke University), Alexandria, Virginia
 Miller, Thomas Paul, B.A. (New York University), Monticello, New York
 Moran, Glenn Richard, B.S. (Seton Hall University), Clark, New Jersey
 Morrison, Francis Henry, A.B. (College of the Holy Cross), Thompsonville, Connecticut
 Moyer, Linton Lauer, B.A. (Albright College), Wyomissing Hills, Pennsylvania
 Murrin, John Owen III, B.A. (University of California at Los Angeles), Long Beach, California
 Orlofsky, Marc Steven, A.B. (Brandeis University), Merrick, New York
 Philion, Norman Joseph III, A.B. (Indiana University), Palatine, Illinois
 Pickering, Jay Dee, B.A. (California State College at Los Angeles), Timmonsville, South Carolina
 Pilo, Barbara, B.A. (University of Rochester), Stewart Manor, New York
 Pipking, Ashmead Pringle, B.A. (University of North Carolina), M.B.A. (Harvard Business School), New York, New York
 Pleitz, James Daniel, B.A. (Baylor University), Pensacola, Florida
 Prior, Thomas Edwin, A.B. (University of Georgia), Stone Mountain, Georgia
 Prousis, Danae, B.A. (Northwestern University), Skokie, Illinois
 Quillen, Michael Clay, B.A. (Vanderbilt University), Cockeyville, Tennessee
 Reifman, William Jay, B.S. (University of Illinois), Skokie, Illinois
 Richardson, Clinton Dennis, B.A. (Albion College), Rome, Georgia
 Richey, Thomas Samuel, B.A. (Wesleyan University), Durham, North Carolina
 Ristine, Thomas Harley, B.A. (Wabash College), Crawfordsville, Indiana
 Robbins, Dale Charles, B.A. (Duke University), Lakewood, New York
 Rud, Victor, A.B. (Harvard University), Detroit, Michigan
 Sand, David Byron, B.A. (Saint Olaf College), Minneapolis, Minnesota
 Schumde, Lee Gene, B.A. (Cornell University), Tinley Park, Illinois
 Schwane, Steven Joseph, B.S. (University of Missouri), Ofallan, Missouri
 Seitz, Douglas Worth, S.B. (Massachusetts Institute of Technology), Cincinnati, Ohio
 Shane, David Norman, B.A. (Wabash College), Evansville, Indiana
 Siemer, Richard Clemens, B.A. (University of Illinois), Teutopolis, Illinois
 Sill, Richard Alvin, B.A. (Occidental College), Northridge, California
 Simmons, William Patton, B.A. (University of Oklahoma), Muskogee, Oklahoma
 Skwiertz, Albert Adam, Jr., B.A. (Saint Joseph's College), East Chicago, Indiana
 Smith, Cheryl Paulette, B.A. (Duke University), Cartersville, Georgia
 Smith, Edward Jerome, B.A. (Clarion State College), M.A. (University of North Carolina), Chapel Hill, North Carolina
 Stacy, George Palmer, B.A. (West Virginia University), Charleston, West Virginia
 Stafford, Samuel Patterson, B.A. (Florida State University), Tallahassee, Florida
 Stajduhar, Michael William, B.A. (Westminster College), Scottsdale, Arizona
 Steckmest, Lawrence Dean, B.A. (Stanford University), Stanford, California
 Stephenson, James Elbert, B.A. (Yale University), Fayetteville, Arkansas
 Tackaberry, Neal Edward, B.S. (Northwestern University), Columbia, Maryland
 Taplin, Norman Eugene, B.B.A. (University of Miami), West Palm Beach, Florida
 Tietz, Paul Henry, B.S. (University of Pennsylvania), Greenwich, Connecticut
 Tisdale, Norwood Boyd, A.B., M.A.T. (Duke University), Bloomfield Hills, Michigan
 Trull, William Jay, Jr., B.S. (University of Tennessee), Asheville, North Carolina
 Walsh, Michael Steven, B.A. (University of Notre Dame), Indianapolis, Indiana
 Welch, John Woodland, B.A., M.A. (Brigham Young University), La Canada, California
 Whiteside, David Powers, B.A. (Stanford University), Birmingham, Alabama
 Wiechel, David Robert, B.A. (Ohio Wesleyan University), Newark, Ohio
 Wiesenfeld, David Matthew, B.A. (Florida State University), Jacksonville, Florida
 Willoughby, Michael Feuger, B.A. (University of Georgia), Savannah, Georgia
 Wright, Paul Michael, B.A. (Wheaton College), Canton, North Carolina

Third-Year Class (Class of 1974)

Adams, Alfred Green, Jr., A.B. (Duke University), Richmond, Virginia
Adler, Kenneth Paul, B.A. (University of Rochester), Manhasset, New York
Anna, Donald David, A.B. (Colgate University), Boonville, New York
Bailly, John Phillip, Jr., B.A. (Ciena College), Albany, New York
Ball, Edna Frances, B.A. (Ursinus College), Perkiomenville, Pennsylvania
Barco, Susan Elizabeth, B.S. (Allegheny College), Durham, North Carolina
Beane, John Calvin, A.B. (University of North Carolina), Durham, North Carolina
Beaumier, Robert Gerard, Jr., B.A. (University of Washington), Portland, Oregon
Becton, Brenda Carole, B.A. (Duke University), Greensboro, North Carolina
Belway, Joel K., B.A. (Pomona College), San Francisco, California
Bennett, William Philip, A.B. (Princeton University), Chevy Chase, Maryland
Berry, James Nilson, Jr., B.S. (Vanderbilt University), Lexington, Kentucky
Binder, Charles Edward, B.A. (Western Michigan University), Kalamazoo, Michigan
Black, Thomas Watson, B.A. (University of Kansas), Hiawatha, Kansas
Boesch, Philip Wendel, Jr., A.B. (Brown University), Providence, Rhode Island
Borchert, William Pomeroy, B.A. (Trinity College-Connecticut), Madison, Connecticut
Bracy, Evelyn Cannon, B.A. (Louisiana State University), New Orleans, Louisiana
Bremer, John Michael, B.A. (Fordham University), Meriden, Connecticut
Brisske, Heinz Juergen, A.B. (Monmouth College), Flossmoor, Illinois
Brown, Colin Wegand, B.A. (Williams College), Yonkers, New York
Brown, Raymond Francis, B.A. (Centre College), Lexington, Kentucky
Buhmann, David Louis, B.A. (Beloit College), Aurora, Illinois
Byers, Joan Herre, B.A. (Emory University), Charlottesville, Virginia
Cappel, Tim Ray, B.S. (University of Missouri), Wright City, Missouri - M.P.P.S.-J.D. Joint Degree Program
Carroll, Candace Mattoon, B.B.A. (George Washington University), Washington, D.C.
Chase, Robert Reynolds, A.B. (Dartmouth College), Dennisport, Massachusetts
Chernak, Ronald Van, B.B.A. (University of Notre Dame), Flossmoor, Illinois
Christie, Robert James, B.A. (University of Michigan), McConnelsville, Ohio
Ciompi, Niccolo A., A.B. (Duke University), Durham, North Carolina
Cochran, Robert Phillips, B.A. (Centre College), Maysville, Kentucky
Cohen, Philip Gary, B.A. (New York University), Bronx, New York
Collier, Curtis, B.S. (Tennessee State University), Mariana, Arkansas
Conklin, Mary Ann, B.A. (State University of New York at Buffalo), Stony Point, New York
Corkery, Ronald Edmund, B.A. (Lehigh University), Allentown, Pennsylvania
Corson, Kenneth Somers, B.A. (Dickinson College), Trenton, New Jersey
Davidson, Kenneth Harry, A.B. (Duke University), Billings, Montana
Decker, John Arland, B.S. (University of Nebraska), Saginaw, Michigan
Dellinger, Anne Maxwell, B.A. (University of North Carolina), M.A. (Tulane University), Durham, North Carolina
Dempsey, Gordon Bartle, A.B. (Wabash College), Indianapolis, Indiana
Dennis, Stephen Neal, B.A. (University of North Carolina), Kensington, Georgia
Doores, Larry D., A.B. (Stanford University), Greenwich, Connecticut
Drennan, James Clifton, B.A. (Furman University), McCormick, South Carolina
Dryer, Raymond Craft, B.A. (Carleton College), Duluth, Minnesota
Dunn, Andrew Dexter, B.A. (Columbia University), Swampscott, Massachusetts
Dwyer, John Vincent, Jr., A.B. (Boston College), Brighton, Massachusetts
Earls, Thomas Andrew, B.A. (Hobart College), Webster, New York
Edwards, John Wesley, II, B.A. (Colgate University), Williamsport, Pennsylvania
Eller, James Robert, Jr., B.A. (Columbia University), Charlotte, North Carolina
Elliott, Stephen Lawrence, A.B. (Stanford University), Roswell, New Mexico
Epstein, Richard Alan, B.A. (State University of New York at Albany), Sag Harbor, New York
Escott, Durant Williams, B.A. (Radcliffe College), Vershire, Vermont
Esping, Theodore James, B.S.B.A. (University of Florida), Hobart, Indiana
Feiner, Stuart Franklin, B.S. (University of Pennsylvania), New York, New York
Ferland, Roger Kenneth, B.A. (Louis and Clark College), Phoenix, Arizona
Freed, Richard Howard, B.S. (University of Maryland), Silver Spring, Maryland
Freeman, Richard Murray, B.A. (Claremont Men's College), Claremont, California
Fulton, Fred William, B.S. (Southwest Missouri State College), Springfield, Missouri
Gallemore, Johnnie L., Jr., B.A. (Emory University), M.D. (Emory School of Medicine), Perry, Georgia
Galloway, Karen Louise, A.B. (East Carolina University), Raleigh, North Carolina
Gamble, John Bonner, Jr., B.A. (University of North Carolina), Macon, Georgia

Getchell, Earle Duncan, Jr., B.A. (Emory University), Mobile, Alabama
 Gladson, Neil Stewart, B.A. (University of Washington), Sunnyside, Washington
 Glass, Richard Casper, B.A. (Duke University), Cranbury, New Jersey
 Gomberg, Steven William, B.A. (University of Maryland), Silver Spring, Maryland
 Good, James Garfield, B.A. (University of Maine), East Sebago, Maine
 Gostin, Lawrence Ogalthorpe, B.A. (State University College of New York at Brockport), Brockport,
 New York
 Gregg, Donna Coleman, B.A. (University of Michigan), Port Clinton, Michigan
 Gregg, Robert Edgar, B.S. (United States Military Academy), Wyomissing, Pennsylvania
 Hamilton, Palmer, B.A. (University of Alabama), Mobile, Alabama
 Hanudel, Robert Andrew, B.B.A. (University of Toledo), Toledo, Ohio
 Hardin, James Carlisle, B.A. (Wofford College), Rock Hill, South Carolina
 Harris, Ellie Glennon, A.B. (Duke University), Washington, D.C.
 Harris, James William, A.B. (Princeton University), Atlanta, Georgia
 Haufe, Stephen David, B.A. (Carleton College), Bloomfield, Iowa
 Healy, William Patrick, B.A. (University of California at Santa Barbara), Torrance, California
 Henderson, Robert Forest, B.A. (Texas Technical University), Taylor, Texas
 Henschel, George Lipman, A.B. (Cornell University), Franconia, New Hampshire
 Hillier, David Richard, B.A. (University of the South), Wheaton, Illinois
 Hogue, Louis Lynn, B.A. (William Jewell College), M.A. (University of Tennessee), Raleigh,
 North Carolina
 Holshouser, Donna, B.A. (University of Illinois), Urbana, Illinois
 Horvath, David Edward, B.S. (Bowling Green State University), Pittsburgh, Pennsylvania
 Houghton, Eric Alan, B.A. (University of South Florida), Denedin, Florida
 House, Robert Harlan, A.B. (University of Missouri), Ava, Missouri
 Janke, Ronald Robert, B.A. (Wittenburg University), Lima, Ohio
 Jernigan, Jerry Wyche, B.A. (Duke University), Greensboro, North Carolina
 Kaufman, Mark David, B.A. (Northwestern University), University City, Missouri
 Kofman, Robert Tilford, B.A. (Pennsylvania State University), State College, Pennsylvania
 Kovacs, Arpad de, B.S. (United States Military Academy), Lakeview, Oregon
 Lassiter, Paul Lendon, B.A. (North Carolina State University), Raleigh, North Carolina
 Leister, Craig Douglas, B.S.B.A. (Bowling Green State University), Alliance, Ohio
 Lesniak, Edward John, B.S. (DePaul University), Chicago, Illinois
 Levin, Jay Jordan, B.A. (Gettysburg College), Baltimore, Maryland
 Locher, James Joseph, A.B. (University of Notre Dame), Monticello, Iowa
 Lockett, Mary Ann, B.A. (University of Tennessee), Knoxville, Tennessee
 Logie, Donald John, Jr., B.A. (Wesleyan University), Wantaga, New York
 Lowden, David William, B.A. (Claremont Men's College), Littleton, California
 Lowry, Lawrence, B., B.B.A. (Marshall University), New Port Richey, Florida
 Mandelkern, Irwin, B.A. (Tulane University), Tallahassee, Florida
 Marion, Patricia Hamm, A.B. (Wittenburg University), Baltimore, Maryland
 Marquette, Ronald Moore, B.S. (United States Air Force Academy), Colorado Springs, Colorado
 Martin, Patrick Henry, B.A. (Northeast Louisiana State College), Bastrop, Louisiana
 Massie, Herb P., B.A. (Haverford College), Laurel, Maryland
 McAllister, Kenneth Wayne, B.A. (University of North Carolina), High Point, North Carolina
 McDermott, Edward Aloysious, Jr., B.A. (Colgate University), Washington, D.C.
 McLain, Susan Lynn, B.A. (University of Pennsylvania), Chestertown, Maryland
 McLain, Thomas Elliott, B.A. (Duke University), Overland Park, Kansas
 Mercer, Traylor Tullar, A.B. (Dartmouth College), Honolulu, Hawaii
 Messmer, Dean Alan, B.A. (Stanford University), Marysville, Washington
 Milspaw, Luther Emerson, Jr., B.A. (Duke University), Winston-Salem, North Carolina
 Mimms, Carney Wilson, B.A. (Yale University), Bronxville, New York
 Moffat, John Roberts, B.A. (Princeton University), Scarsdale, New York
 Moise, Philip Harby, B.A. (The Citadel), Sumter, South Carolina
 Montgomery, William Page, B.A. (Butler University), Rushville, Indiana
 Nilsson, Rand Werner, B.A. (Wabash College), Laurel, Maryland
 Norris, Reginald Wade, B.A. (Duke University), Gastonia, North Carolina
 North, Kenneth Earl, B.A. (Northern Illinois University), DeKalb, Illinois
 Olsen, Rory Robert, B.A. (Loyola University), Chicago, Illinois
 Ord, George Parkin, Jr., B.S. (University of Maryland), Pittsburg, Pennsylvania
 Owens, Marcus Sherman, B.A. (Florida State University), Largo, Florida
 Parr, Stephen Levuis, A.B. (Bucknell University), Wyckoff, New Jersey
 Pascal, Christopher Biram, B.A. (Auburn University), Jackson, Mississippi
 Payne, Margaret Phyllis, A.B. (University of North Carolina), Winston-Salem, North Carolina
 Peavey, Michael Pendexter, B.A. (The Citadel), Westfield, Massachusetts

Perdue, Christine Hope, A.B. (Oberlin College), Wayne, West Virginia
 Pierce, Steven Donald, B.A. (Union College), Westfield, Massachusetts
 Poe, David Russell, B.S. (University of Missouri), Kirkwood, Missouri
 Powell, Gregory Vincent, B.A. (Providence College), Chevy Chase, Maryland
 Powell, William George, B.A. (West Virginia University), Parkersburg, West Virginia
 Rayburn, Charles Richard, B.S. (University of Tennessee), Columbia, Tennessee
 Redding, Robert Valentine, B.A. (Southwestern at Memphis), Memphis, Tennessee
 Reemsnyder, Ronald David, B.A. (Mount Union College), Canton, Ohio
 Richards, Russell Bachman, B.S. (University of Tennessee), Bristol, Tennessee
 Riddell, Stephen Wayne, B.S. (Bucknell University), Williamsport, Pennsylvania
 Rosenberg, William Lang, B.A. (University of Pennsylvania), Nashville, Tennessee
 Rubin, Irwin Neal, B.A. (Franklin and Marshall College), New York, New York
 Sanders, John Allen, B.A. (Lawrence University), Winona, Minnesota
 Sandron, Ira, A.B. (Occidental College), Long Beach, California
 Scheide, Philip Norman, B.A. (Concordia College), Hudson, Wisconsin
 Schenck, Peter Frederick, B.A. (Dartmouth College), Westmont, New Jersey
 Schlossberg, Brett Alan, B.A. (Northwestern University), Evansville, Illinois
 Schriemer, James Allan, B.A. (University of Michigan), Grand Rapids, Michigan
 Sessoms, Stuart McGuire, Jr., A.B. (University of North Carolina), Durham, North Carolina
 Sharbaugh, Charles Thomas, B.S. (Pennsylvania State University), Ebensburg, Pennsylvania
 Shaw, Andrew, B.A. (Duke University), Sarasota, Florida
 Shelton, Larry Wayne, B.A. (Duke University), Java, Virginia
 Skoglund, Larry Joseph, B.A. (University of South Dakota), Sioux City, Iowa
 Sloan, Phil, B.A. (Queens College of the City University of New York), Flushing, New York
 Smith, Dennis Neil, B.S. (Washington University), Sunset Hills, Missouri
 Smith, George Cruice, B.A. (Pennsylvania State University), Bryn Mawr, Pennsylvania
 Smith, Margaret Dianne, B.A. (Furman University), Lenoir, North Carolina
 Smith, Norman Austin, B.A. (Duke University), Charlotte, North Carolina
 Sorrells, Alan Terry, B.B.A. (Georgia State University), Atlanta, Georgia
 Spackman, Randall Proctor, B.A. (Brigham Young University), Cardston, Alberta, Canada
 St. Amant, Joseph Lyle Stanhope, B.A. (Rice University), Hammond, Louisiana
 Stevens, Thomas Charles, B.A. (State University of New York at Buffalo), Skaneateles, New York
 Studzinski, Edward Alfred, B.A. (Boston College), Peabody, Massachusetts
 Sweeney, Paula Ann, A.B. (Mt. Holyoke College), Norwich, Connecticut
 Tally, John Cowles, A.B. (University of North Carolina), Fayetteville, North Carolina
 Teller, Richard Eric, B.A. (Tulane University), Great Neck, New York
 Tice, Michael Charles, A.B. (Princeton University), Tice, Florida
 Van Wagoner, Mark Owen, B.A. (Brigham Young University), Herber, Utah
 Vernet, Jean Ellen, Jr., B.A. (Michigan State University), Hershey, Pennsylvania
 Wallis, Donald Wills, B.A. (Duke University), Wyckoff, New Jersey
 Wardle, Lynn Dennis, B.A. (Brigham Young University), San Bernardino, California
 Webster, Peter David, B.S.F.S. (Georgetown University), Ashland, Massachusetts
 White, Clair Fox, A.B. (Duke University), Atlanta, Georgia
 Williams, Thomas Albert, B.A. (Whitman College), Walla Walla, Washington
 Williams, Tommy Joe, B.S. (Arizona State University), Tempe, Arizona
 Wilson, Mary Jean, B.A. (Bryn Mawr College), Winnetka, Illinois
 Winland, Thomas William, B.S. (Ohio State University), Zanesfield, Ohio
 Yasser, Raymond Lawrence, B.A. (University of Delaware), Plainview, New York
 Zimring, Jonathan Alan, B.A. (State University of New York at Buffalo), Bayside, New York
 Zwenig, Frances Anne, A.B. (College of William and Mary), Arlington, Virginia

Special Students

Fox, Adrienne Meltzer, B.A. (Goucher College), Washington, D. C.
 Rosen, Gerald Martin, B.S. (Lowell Technological Institute), Ph.D. (Clarkson College of Technology),
 Chapel Hill, North Carolina

Graduate Student

Bullock, William Howard, A.B. (University of North Carolina), J.D. (University of Virginia School
 of Law), Washington, North Carolina



MAP OF DUKE UNIVERSITY

East Campus

- | | | | |
|---|-------------------------|----|------------------------------|
| A | Baldwin Auditorium | D | Pegram House |
| B | Bassett House | P | Duke Press |
| C | Brown House | Q | Infirmary |
| D | Union Building | R | Ark |
| E | Faculty Apartments | S | Crowell Building |
| F | Art Museum, Geology | T | Epworth Inn |
| G | Aycock House | U | Gilbert-Addoms House |
| H | East Duke Building | V | Southgate Hall |
| I | West Duke Building | W | Campus Center |
| J | Jarvis House | X | Woman's College
Gymnasium |
| K | Carr Building | Y | Asbury Building |
| L | Giles House | Z | Bivins Building |
| M | Woman's College Library | AA | Art Building |
| N | Alspaugh House | BB | Branson Building |



West Campus

- | | | | | | | | |
|---|--|---|--|---|-------------------------------------|----|--|
| A | Duke Chapel | H | Hospital Main Entrance | D | Craven Quadrangle | V | Card Gymnasium |
| B | Divinity School | I | Gerontology, D & T,
Clinical Research | P | Wannamaker Hall | W | Indoor Stadium |
| C | Gray Building | J | Duke Hospital | Q | Crowell Quadrangle | X | School of Law |
| D | Perkins Library | K | Sociology, Psychology | R | Clock Tower Court | Y | Gross Chemical Laboratory |
| E | Language Center | L | Social Sciences | S | Kilgo Quadrangle | Z | Biological Sciences |
| F | Did Chemistry Building | M | Allen Building | T | Union Building | AA | Plant Environment
Laboratory |
| G | Davison Building
School of Medicine | N | Few Quadrangle | U | Flowers Building
Page Auditorium | BB | Physics Building |
| | | | | | | CC | Nuclear Laboratory |
| | | | | | | DD | School of Engineering |
| | | | | | | EE | Army Research |
| | | | | | | FF | Medical Center Research
Buildings |
| | | | | | | GG | Nanaline H. Duke Medical
Sciences Building |
| | | | | | | HH | Warehouse, Shop |
| | | | | | | II | Bell Building |
| | | | | | | JJ | Hanes House |
| | | | | | | KK | Hanes House Annex |
| | | | | | | LL | Pickens Rehabilitation
Center |
| | | | | | | MM | Graduate Center |
| | | | | | | NN | Alumni House |
| | | | | | | OD | Commonwealth-Studies
Center |
| | | | | | | PP | Personnel Office |
| | | | | | | QQ | International House |
| | | | | | | RR | Personnel Office |
| | | | | | | SS | Education Improvement
Program |
| | | | | | | TT | A Better Chance Program
International Studies
Center |
| | | | | | | UU | Campus Stores Office |
| | | | | | | VV | Office of Institutional
Advancement |
| | | | | | | WW | Information Services
Visitors Bureau |
| | | | | | | XX | Admissions Office |
| | | | | | | YY | Edens Quadrangle |
| | | | | | | ZZ | Wade Stadium |





DUKE
UNIVERSITY
BULLETINS



BULLETIN
of Duke University

1974



1975

DIVINITY SCHOOL

**Bulletin of
Duke University**

Divinity School

1974-1975

Durham, North Carolina 1974

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Calendar of the Divinity School

1974

August

- 29 Thursday—Orientation for new students begins
- 30 Friday—Orientation continues

September

- 3 Tuesday, 8:00-9:30 a.m.—Drop/add period for returning students
- 3 Tuesday, 10:00-12:00 noon—Registration of all new students
- 4 Wednesday, 8:20 a.m.—Fall semester classes begin
- 4 Wednesday, 7:30 p.m.—Divinity School Opening Convocation
- 18 Wednesday—Last day for changing classes for the fall semester
- 27 Friday, 6:00 p.m.—Field Education Reception

October

- 6 Sunday—Field Education Service begins
- 28-30 Monday-Wednesday—Divinity School Convocation and Pastors' School with Gray Lectures

November

- 12 Tuesday—Registration for spring semester, 1975
- 27 Wednesday, 6:00 p.m.—Thanksgiving recess begins

December

- 2 Monday—Classes resume
- 10 Tuesday—Fall semester classes end
- 11-12 Wednesday, Thursday—Reading period
- 13 Friday—Final examinations begin
- 20 Friday—Final examinations end

1975

January

- 10 Friday—Orientation for new students
- 13 Monday—Registration for new students, changes for returning students
- 14 Tuesday, 8:20 a.m.—Spring semester classes begin
- 28 Tuesday—Last day for changing courses

March

- 7 Friday, 6:00 p.m.—Spring recess begins
- 17 Monday—Classes resume
- 28, 31 Friday, Monday—Easter recess

April

- 8 Tuesday—Registration for fall semester, 1975
- 23 Wednesday—Spring semester classes end
- 23 Wednesday, 9:30 a.m.—Closing Convocation
- 24-28 Thursday-Monday—Reading period
- 29 Tuesday—Final examinations begin

May

- 6 Tuesday—Final examinations end
- 10 Saturday, 3:00 p.m.—University Baccalaureate Service
- 10 Saturday, 7:30 p.m.—Divinity School Baccalaureate Service
- 11 Sunday, 3:00 p.m.—Commencement Exercises

University Administration

GENERAL ADMINISTRATION

Terry Sanford, J.D., LL.D., D.H., L.H.D., D.P.A., President
John O. Blackburn, Ph.D., Choncellor
Frederic N. Cleaveland, Ph.D., Provost
Charles B. Huestis, *Vice President for Business ond Finonce*
William G. Anlyan, M.D., *Vice President for Health Affairs*
Juanita M. Kreps, Ph.D., *Vice President*
Stephen Cannada Harward, A.B., C.P.A., *Treasurer ond Assistant Secretary*
J. Peyton Fuller, A.B., *Controllor*
J. David Ross, J.D., *Director of Development ond Director of Compoign Planing*
Harold W. Lewis, Ph.D., *Vice Provost ond Deon of the Foculty*
John C. McKinney, Ph.D., *Vice Provost ond Deon of the Groduote School*
Anne Flowers, Ed.D., *Acting Vice Provost ond Acting Deon of Trinity College of Arts ond Sciences*
Frederick C. Joerg, M.B.A., *Assistant Provost for Academic Administration*
Joel L. Fleishman, LL.M., *Vice Choncellor for Public Policy Education ond Research; Director of Institute for Policy Sciences ond Public Affairs*
Benjamin Edward Powell, Ph.D., *Librorion*
William E. King, Ph.D., *University Archivist*
Clark R. Cahow, Ph.D., *University Registrar ond Acting Director of Admissions*
Olan Lee Petty, Ph.D., *Director of the Summer Session*
Victor A. Bubas, B.S., *Assistant to the President*
Rufus H. Powell, LL.B., *Secretary of the University*
A. Kenneth Pye, LL.M., *University Counsel*

DIVINITY SCHOOL EDUCATIONAL ADMINISTRATION

Thomas A. Langford (1956), B.D., Ph.D., *Deon of the Divinity School*
P. Wesley Aitken (1963), B.D., Th.M., *Director of Clinical Postoral Education*
Joseph B. Bethea (1972), B.D., D.D., *Director of Block Church Studies*
James M. Efird (1962), B.D., Ph.D., *Director of Student Academic Affairs*
Richard A. Goodling (1959), B.D., Ph.D., *Director of Programs in Postoral Psychology*
Shirley O'Neal (1966), *Administrative Assistant for General Administration ond Finonce*
McMurry S. Richey (1954), B.D., Ph.D., *Director of Continuing Education*
B. Maurice Ritchie (1973), B.D., Th.M., *Director of Admissions ond Student Affairs*
Early Clifford Shoaf (1972), B.D., *Director of Field Education*

Division of Advanced Studies

Waldo Beach (1946), B.D., Ph.D., *Supervisor of the Master of Theology Program*
Dwight Moody Smith (1965), B.D., Ph.D., *Director of Graduate Studies in Religion*

Library

Donn Michael Farris (1950), M.Div., M.S. in L.S., *Librorion*
Harriet V. Leonard (1960), M.Div., M.S. in L.S., *Reference Librorion*
Betty Walker, B.A., *Circulation Librorion*
Judy Faison, A.B., *Assistant Circulation Librorion*



Faculty and Staff

- Lloyd Richard Bailey (1971), B.D., Ph.D., Associate Professor of Old Testament
Frank Baker (1960), B.D., Ph.D., Professor of English Church History
Waldo Beach (1946), B.D., Ph.D., Professor of Christian Ethics
John K. Bergland (1973), M.Div., Associate Professor of Homiletics
Robert Earl Cushman (1945), B.D., Ph.D., L.H.D., Research Professor of Systematic Theology
William David Davies (1966), M.A., D.D., F.B.A., George Washington Ivey Professor of Advanced Studies and Research in Christian Origins
*Herbert O. Edwards (1974), S.T.B., Assistant Professor of Black Church Studies
James Michael Efird (1962), B.D., Ph.D., Associate Professor of Biblical Languages and Interpretation
Donn Michael Farris (1950), M.Div., M.S. in L.S., Professor of Theological Bibliography
†Richard A. Goodling (1959), B.D., Ph.D., Professor of Pastoral Psychology
*Robert Clark Gregg (1974), S.T.B., Ph.D., Assistant Professor of Patristics and Medieval Church History
Stuart C. Henry (1959), B.D., Ph.D., Professor of American Christianity
Frederick Herzog (1960), Th.D., Professor of Systematic Theology
Osmond Kelly Ingram (1959), B.D., Professor of Parish Ministry
Creighton Lacy (1953), B.D., Ph.D., Professor of World Christianity
Thomas A. Langford (1956), B.D., Ph.D., Professor of Systematic Theology
Paul A. Mickey (1970), B.D., Th.D., Assistant Professor of Pastoral Theology
Roland E. Murphy (1971), M.A., S.T.D., S.S.L., Professor of Old Testament
Jill Raitt (1973), Ph.D., Associate Professor of Historical Theology
†McMurry S. Richey (1954), B.D., Ph.D., Professor of Theology and Christian Nurture
‡Charles K. Robinson (1961), B.D., Ph.D., Associate Professor of Philosophical Theology
John Jesse Rudin II (1945), B.D., Ph.D., Associate Professor of Liturgy and Worship
Dwight Moody Smith, Jr. (1965), B.D., Ph.D., Professor of New Testament Interpretation
Harmon L. Smith (1962), B.D., Ph.D., Professor of Moral Theology
David Curtis Steinmetz (1971), B.D., Th.D., Associate Professor of Church History and Doctrine
*John H. Westerhoff III (1974), M.Div., Assistant Professor of Religion and Education
Robert L. Wilson (1970), B.D., Ph.D., Research Professor of Church and Society
Franklin Woodrow Young (1968), B.D., Ph.D., Amos Ragan Kearns Professor of New Testament and Patristic Studies

FACULTY, DEPARTMENT OF RELIGION

(Teachers in graduate program in religion whose courses are open to Divinity School students.)

- David G. Bradley (1949), Ph.D., Professor of History of Religions
Kalman Bland (1973), Ph.D., Assistant Professor of Judaic Studies
James H. Charlesworth (1969), B.D., Ph.D., Assistant Professor of New Testament
Henry B. Clark (1966), Ph.D., Associate Professor of Social Ethics
Roger Corless (1970), Ph.D., Assistant Professor of History of Religions
Wesley A. Kort (1965), Ph.D., Associate Professor of Religion and Literature
Bruce B. Lawrence (1971), Ph.D., Assistant Professor of History of Religions
Charles H. Long (1974), Ph.D., Professor of History of Religions
Eric M. Meyers (1969), Ph.D., Associate Professor of Judaic Studies
Robert T. Osborn (1954), Ph.D., Professor of Theology
Harry B. Partin (1964), Ph.D., Associate Professor of History of Religions
William H. Poteat (1960), Ph.D., Professor of Religion and Culture
James L. Price (1952), Ph.D., Professor of New Testament
Orval Wintermute (1958), Ph.D., Associate Professor of Old Testament

ASSOCIATES IN INSTRUCTION

- P. Wesley Aitken (1953), B.D., Th.M., Chaplain Supervisor of Duke Medical Center and Part-Time Assistant Professor of Clinical Pastoral Education
John William Carlton (1969), B.D., Ph.D., Adjunct Professor of Preaching
Philip R. Cousin (1969), S.T.B., Lecturer in Church and Society

*Appointment effective September 1, 1974.

†Sabbatical leave, spring semester, 1975.

‡Sabbatical leave, fall semester, 1974.

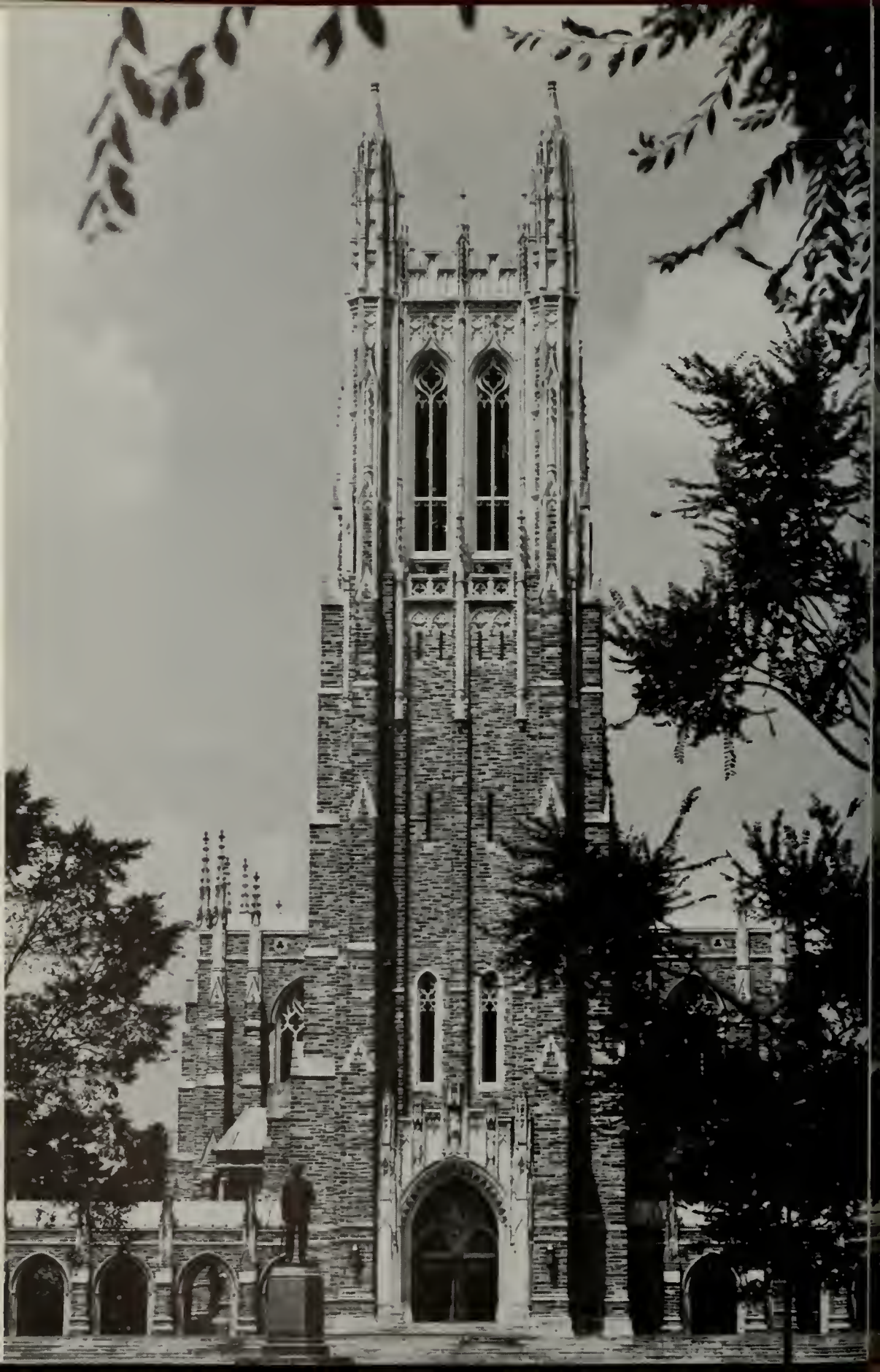
Jahn C. Detwiler (1966), B.D., Th.M., *Chaplain Supervisor of Duke Medical Center and Part-Time Assistant Professor of Clinical Pastoral Education*
 Albert F. Fisher (1974), M.Div., *Adjunct Associate Professor of Parish Work*
 Edwin R. Garrison (1972), B.D., D.D., LL.D., *Visiting Consultant for Field Education and Continuing Education (Former Bishop of the Dakotas Area)*
 Jahn Kennedy Hanks (1954), M.A., *Lecturer in Sacred Music, Director of the Divinity School Choir, and Professor of Music at Duke University*
 Carlyle Marney (1972), Th.M., Th.D., Litt.D., D.D., *Visiting Professor of Preaching*
 M. Wilson Nesbitt (1958), B.D., D.D., *Adjunct Professor of the Work of the Rural Church*

EMERITI

Kenneth Willis Clark (1931), B.D., Ph.D., D.D., *Professor Emeritus of New Testament and Co-Director of the International Greek New Testament Project*
 James T. Cleland (1945), M.A., S.T.M., Th.D., D.D., *James B. Duke Professor Emeritus of Preaching*
 William Arthur Kale (1952), B.D., D.D., *Professor Emeritus of Christian Education*
 Hiram Earl Myers (1926), S.T.M., D.D., *Professor Emeritus of Biblical Literature*
 Ray C. Petry (1937), Ph.D., LL.D., *James B. Duke Professor Emeritus of Church History*
 H. Shelton Smith (1931), Ph.D., D.D., Litt.D., *James B. Duke Professor Emeritus of American Religious Thought*
 William Franklin Stinespring (1936), Ph.D., *Professor Emeritus of Old Testament and Semitics*
 Albert John Waltan (1948), B.S.L., D.D., *Professor Emeritus of Church Administration and Director of Field Work*

SECRETARIAL STAFF

Mary P. Chestnut, *Faculty Secretary*
 Vivian P. Crumpler, *Faculty Secretary*
 Ann C. Daniels, *Faculty Secretary*
 Rebecca Ann Fowler, *Faculty Secretary*
 Clara S. Gadwin, *Secretary to the Dean*
 Lesta Gotsch, *Secretary to the Director of Admissions and Student Affairs*
 Patricia M. Haugg, *Faculty Secretary*
 Maxie B. Honeycutt, *Administrative Secretary for Student Financial Aid*
 Janice Maseley, *Faculty Secretary*
 Joan F. Lunsford, *Secretary to the Director of Admissions and Student Affairs*
 Margie M. Meeler, *Secretary to the Director of Field Education*
 Frances D. Parrish, *Secretary to the Director of the J. M. Ormand Center for Research, Planning and Development*
 Lavan O. Perkins, *Faculty Secretary*
 Marie Smith, *Secretary to the Director of Graduate Studies in Religion*
 Norma J. Tate, *Faculty Secretary*
 Judy L. Williams, *Administrative Secretary, Registry*



1

General Information

Historical Statement

Duke University as it exists today has developed from simple beginnings in a school established in 1838 in North Carolina. Called Union Institute for a time, the school developed into a normal college by 1851, and in 1859 was renamed Trinity College. In 1892 the college moved to Durham, North Carolina.

Mr. James B. Duke in December, 1924, established a trust fund for educational and charitable purposes. The chief beneficiary was Trinity College, which became Duke University. The purpose for establishing the trust was very clear: "I have selected Duke University as one of the principal objects of this trust because I recognize that education, when conducted along sane and practical, as opposed to dogmatic and theoretical lines, is, next to religion, the greatest civilizing influence. . . . And I advise that the courses at this institution be arranged, first, with special reference to the training of preachers, teachers, lawyers, and physicians, because these are most in the public eye, and by precept and example can do most to uplift mankind. . . ." The School of Religion began its work in the academic year 1926-1927, and formal exercises for its opening were held on November 9, 1926. In 1940 the name was changed to the Divinity School.

During its history the Divinity School has had outstanding teachers, scholars, and administrative leaders,* and its graduates have distinguished themselves by making significant contributions to the church and the world. In 1964 a significant program of expansion was begun, culminating in February, 1972, when the Divinity School doubled its physical facilities and moved into a handsome new building. Formal dedication services were held October 31, 1972.

Since the institution of the School in 1926, the following persons have served as Deans or Acting Deans: Edmund Davison Soper, 1926-1928; Elbert Russell, 1928-1941; Paul Neff Garber, 1941-1944; Harvie Branscomb, 1944-1946; Gilbert T. Rowe, Acting Dean of the Faculty, 1946-1947; Paul E. Root (elected in 1947 but died before assuming office); Harold A. Bosley, 1947-1950; James Cannon III, Acting Dean 1950-1951, Dean 1951-1958; Robert Earl Cushman, 1958-1971; Thomas A. Langford, since 1971.



The Role of the Divinity School

The Divinity School represents theological inquiry and learning within the greater University. By history and indenture, it stands within the Christian tradition and recognizes its distinctive lineage in, as well as its continuing obligation to, the United Methodist Church. The Divinity School, although United Methodist in tradition and dependency, receives students from many Christian denominations and offers its educational resources to representatives of the several communions who seek an education for a church-related ministry. From its inception, it has been ecumenical in aspiration, teaching, and practice, as well as in its faculty. Educational policy has consistently aspired to foster a Christian understanding "truly catholic, truly evangelical, and truly reformed."

The principal purpose of the Divinity School is the professional education for the ministry, which in today's world is manifested in a variety of forms. Provision to implement these increasing variations of ministry is a part of the School's curricular resources.

Although the conventional and inherited styles of ministry are now undergoing change, the Divinity School curriculum continues to prepare students for informed and discriminating discharge of the historic offices of church and congregation through the ministry of Word and Sacrament, pastoral care, and teaching. The Divinity School believes these offices will remain, although the form and context of "the local church" may change.

With this in mind, the Divinity School tries to prepare students for the mature performance of their vocation. It hopes to develop in each student a disciplined intelligence, informed by sound learning and equipped for worthy professional service. The resources are offered to students with a diversity of ministerial aims, although the School seeks, by recruitment and financial support, to prepare persons for ordination or lay professional vocations in the churches. This is regarded as a service to the Church, to the world, and primarily to the Lord of the Church.

The Relation of the Divinity School to Duke University

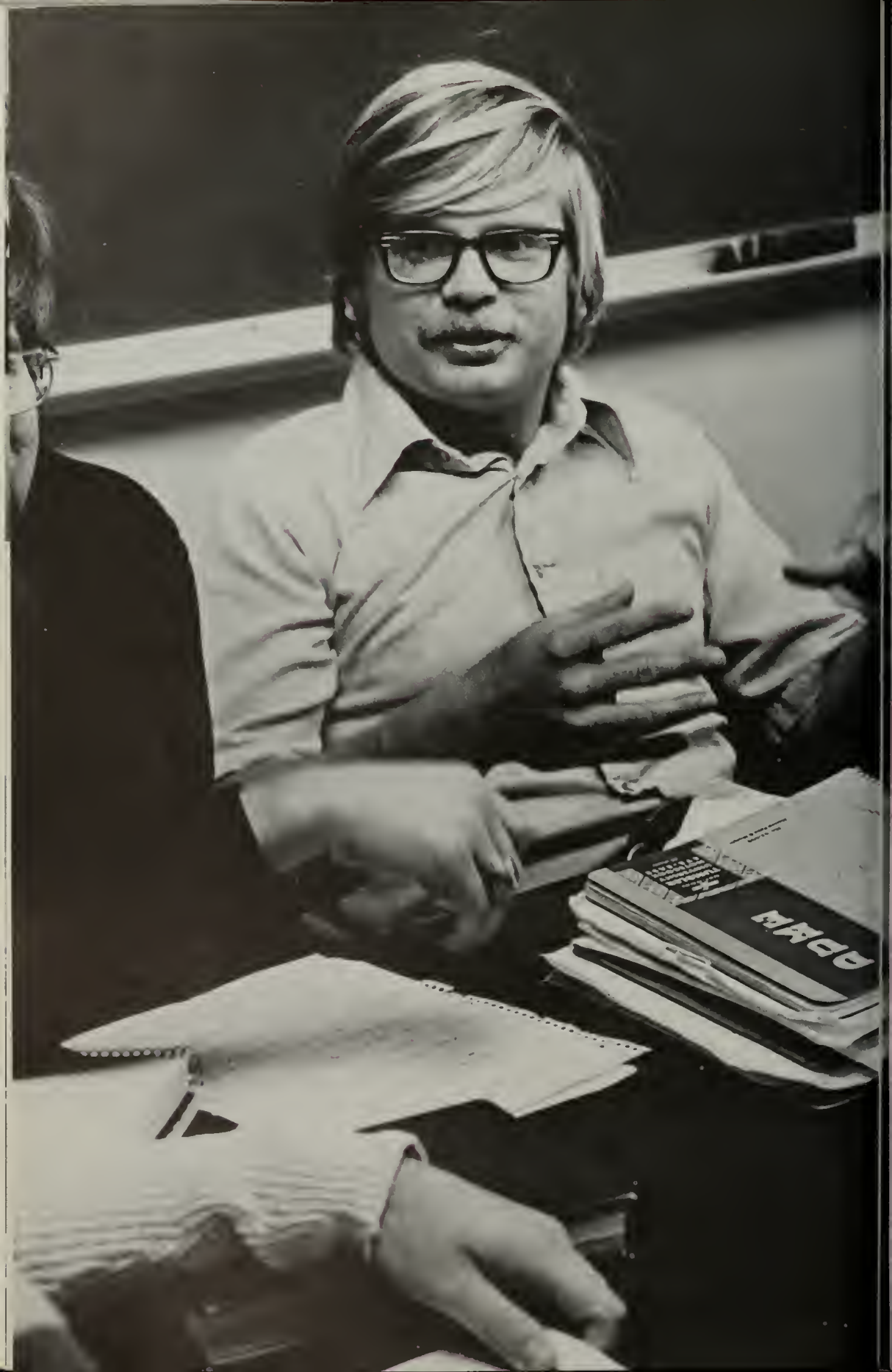
The Divinity School is an integral part of the University and shares fully in its activities, privileges, and responsibilities. The Sunday services in the University Chapel give Divinity School students each year an opportunity to hear several of the country's leading ministers. The University libraries make a rich collection of books and other materials easily accessible. Without paying additional fees, selected courses in the Graduate and professional schools are open to Divinity School students, as well as the general, cultural, and recreational resources of the University.

Library Resources

Divinity School Library. The Divinity School Library contains a collection of more than 170,000 volumes in the field of religion and related disciplines and affords an unusual wealth of material for the seminary student. Although an integral part of the University's nine-unit library system, which possesses more than 2,500,000 volumes, the Divinity School Library has its own separate facilities in the Divinity School building. Its book collection is operated on the open stack system, and its reading rooms provide study facilities for students, space for the special reference collection in religion, and for the more than 575 religious periodicals to which the library currently subscribes.

Staffed by a librarian and a reference librarian, who are trained in theology as well as library administration, by a circulation staff of two persons, and by a number of student assistants, the Divinity School Library offers a variety of reference services to assist the student in selecting and locating materials. The staff, in cooperation with the faculty, maintains a book and periodical collection to support basic courses and advanced research in all major fields of religious studies.

The Divinity School Library is adjacent to the Perkins Library. The seminary student may use the resources and facilities of the Perkins Library, some of which include manuscripts, archives, public documents, newspapers, periodicals, microfilms, maps, rare materials (among which are sixty prized ancient Greek manuscripts), and reference assistance. There is a provision for borrowing books, not in the Duke libraries, from the library of the University of North Carolina and other neighboring institutions.



2

Admissions

Requirements and Procedures for Admission

The Divinity School is a fully accredited member of the American Association of Theological Schools and is one of fourteen accredited seminaries of the United Methodist Church. It considers candidates for admission who hold an A.B. degree, or its equivalent, from a college approved by a regional accrediting body; who have college records which indicate their ability to succeed in graduate studies; and those who have earned an academic average of at least a B- (2.65 on a 4.0 scale).

An application blank may be obtained from the Admissions Office of the Divinity School. No specific date is set for filing and no application fee is required. Applicants should return the completed form along with an official college transcript and records of all other academic credits, letters of recommendation, and a personal statement of purpose.

Applications are evaluated on the basis of this total body of credentials with regard to the candidate's academic achievements as well as his personal and professional qualifications for Christian ministry. A minimum of thirty days is required to process any application, most take longer.

The applications of students from foreign countries will be considered individually. Training equivalent to that of a baccalaureate degree from an accredited American college must have been received. All financial arrangements must be completed in writing before an admissions decision can be made.

Applicants are expected to indicate their acceptance of a notification of admission within three weeks and to confirm this with the payment of an admission fee of \$30.00. Upon matriculation, this fee is applied to their first term bill.

No admission is final until the Student Health Service has received a certificate of immunization and general health. This should be submitted between July 1 and September 1.

Entering students are required to take tests administered by the University Counseling Center and the Divinity School at the time of matriculation.

Persons who do not matriculate at the time for which they were originally admitted forfeit admission unless they present a written request for postponement to the Director of Admissions and Student Affairs. A student who wishes to withdraw from school for personal reasons for a period of longer than one year should also confer with the Director and file with him a written statement of withdrawal. A student wishing to leave school for a short period of time and resume studies at a later date should file a leave-of-absence request with the Director of Academic Affairs.

Pre-enrollment for later admission may be granted to persons who meet the Divinity School standards for admission. Applications for pre-enrollment may be addressed to the Admissions Office. Pre-enrolled students send transcripts of each year's college work by June 15 of each year in which they are pre-enrolled. *Pre-enrollment does not guarantee final admission.*

Pre-Seminary Curriculum. The Divinity School of Duke University follows the guidelines of the American Association of Theological Schools with respect to undergraduate preparation for theological study. In general, this means a strong background in liberal arts, especially the humanities. A well-rounded background in English language and literature, history, philosophy, psychology, religion, social science, and foreign language is especially desirable.

When a student has concentrated in the area of religion, there may be opportunity for advanced standing. This does not reduce the time or the number of hours required for graduation, but does allow the student to begin theological work at a more advanced level.

Transfer of Credit. Under certain conditions transfer of credit from theological schools accredited by the American Association of Theological Schools is allowed by the Divinity School. Applications for transfer of credit will be ruled upon by the Committee on Admissions, and will be subject to evaluation in terms of the prevailing graduation requirements of the Divinity School. Ordinarily, credit from another institution will not be granted exceeding one-half of the total number of credits required for graduation by the Divinity School. In each case a letter of honorable dismissal from the school from which transfer is made is required along with transcript of academic credits.

Admission as a Special Student. Special student status may be granted with the approval of the admissions officer and the Dean. Particular circumstances must prevail in the case of such admissions. *Special students are not eligible for tuition grants, scholarships, field work, or other financial aid.*

Admission on Probation. Applicants for admission who are graduates of nonaccredited colleges will be considered on their merits. Ordinarily, such applicants have achieved a superior average for a four-year college course. Admission of such persons will, in every case, be on probation.

Applicants for admission who are graduates of accredited colleges but whose college transcripts do not fully meet Divinity School standards may be admitted on probation if other factors considered justify admission. Probation means:

1. Limited schedules or work, the amount to be determined by the Director of Academic Affairs (ordinarily no more than 10 hours each of the first two semesters).
2. Ineligibility for advanced standing.
3. Review of work at the end of each semester by the Committee on Academic Standing until they are removed from probation.



Students whose work after admission is not satisfactory may be placed on probation, and such students who during the first year of Divinity School maintain less than a C average, including one or more failures, ordinarily will be required to withdraw from the School.

Conduct of Students

Duke University expects and will require of all its students continuing loyal cooperation in developing and maintaining high standards of scholarship and conduct.



The University wishes to emphasize its policy that all students are subject to the rules and regulations of the University as currently in effect or, as from time to time, are put into effect by the appropriate authorities of the University.

Any student, in accepting admission, indicates his willingness to subscribe to and be governed by these rules and regulations and acknowledges the right of the University to take such disciplinary action, including suspension and/or expulsion, as may be deemed appropriate, for failure to abide by such rules and regulations or for conduct adjudged unsatisfactory or detrimental to the University.

Ministerial and Professional Qualifications. All students who are admitted to academic study in the Divinity School are subject to the established order of administrative regulations of the University and the accepted standards of personal conduct it enjoins; *continuance in the School is conditional upon acknowledgment of and compliance with such regulations and standards.*

In particular, the University and the Divinity School expect and require students in candidacy for degrees leading to a ministerial vocation, not only to exemplify the dignity of their calling, but also to exhibit attitude and conduct conformable with the recognized standards of their Christian profession.

On this prior understanding, therefore, the University reserves the right, and matriculation by the student is a concession to this right, to compel the withdrawal of any student whose conduct at any time is not satisfactory to the University, even though no specific charge is made against the student.

Faculty Advisers. Each entering student is assigned a faculty adviser with whom he will consult concerning the course of study throughout the student's years in the School.



3

Community Life

Corporate Worship

One of the most important aspects of a program of training for Christian service and the Christian life is a vigorous, inspiring, and varied program of participation in corporate worship. This corporate life of the Divinity School is centered in York Chapel where regular chapel services are held weekly. These services are led by members of the faculty, members of the student body, and by visiting guests. Services are voluntary but have been and will continue to be sources of inspiration and strength to the members of the community.

Living Accommodations

Housing. Duke University provides residence hall and apartment accommodations for single graduate and professional men and women. Duke University is now building a 500 unit housing facility which will be known as Central Campus Apartments. Planned for completion during the spring semester of 1975, the complex will provide housing for married graduate and professional students, single undergraduate and graduate students, and single and married students in nondegree allied health programs.

For single students efficiencies, one-bedroom, and two-bedroom apartments will be fully furnished. The apartments for married students will include a few furnished efficiencies and a number of one, two, and three-bedroom units in which the kitchen, living room, and first bedroom will have basic furnishings. These apartments are furnished and equipped in such a way as to provide economy and convenience to the eligible married students and at the same time allow for individual tastes and needs.

The monthly rental rates for each type of apartment will be much lower than those offered on the current housing market. For further information on these apartments, married and single students should write: Manager of

Apartments and Property, Duke University, 217 Anderson Street, Durham, North Carolina 27706.

Until the entire complex is occupied, the University will provide assistance to married graduate and professional students in locating suitable housing in Durham where varied types of reasonably priced units are available.

The Graduate Center, near the Medical Center, and Town House Apartments house men and women enrolled on a full-time basis in the graduate and professional schools. Town House Apartments are located between East and West Campuses.

The Graduate Center houses 189 male graduate students, 56 female graduate students, and 117 female undergraduate students. Common facilities on the main floor are shared by men and women.

Students are normally licensed to occupy graduate residential space for the academic year, but for no period less than a semester or specified term.

Duke University operates Town House Apartments as well, primarily for graduate and professional school students. There are 32 two-bedroom units, each furnished for three occupants. Two students occupy the master bedroom with adjoining half-bath, and the third occupies a smaller bedroom. A living room, kitchen, and full bath complete the living arrangement. Additional features are air-conditioning and a swimming pool. The campus bus, serving all parts of the University, is accessible to the Town House Apartments.

Detailed information about University housing facilities for single students, and the housing assistance program for married students, will be provided upon request by the Department of Housing Management, Duke University, Duke Station, Durham, North Carolina 27706.

Rooms in residence halls and spaces in the Town House Apartments or other residential units may be reserved by applicants only if they have been accepted by the graduate or professional schools, and after the required \$50 residential deposit has been paid to the University. The initial residential deposit is required with the application and is held until the room or apartment is vacated. Application forms and detailed information on graduate housing will be mailed when the graduate or professional schools have notified the Department of Housing Management of official acceptance of the student. Single students may express a choice for the type of housing desired. Completed applications for rooms and apartments are to be returned with the required deposits to the Department of Housing Management, Duke Station, Duke University, Durham, North Carolina 27706. Assignment priority is established by the date of receipt of completed applications with deposits in this office.

Regulations governing occupancy of rooms and apartments will be provided by the Department of Housing Management at the time application forms are forwarded to accepted students. Occupants within each type of housing are expected to comply with the appropriate regulations.

For the cost of housing, see the section on Financial Information.

Food Services. Food service on both East and West Campus is readily available. The dining facilities on the West Campus include a cafeteria with multiple-choice menus, a service area which includes cafeteria counters as well as a grill, and a table service dining room, The Oak Room, where full meals and *a la carte* items are served. The Cambridge Inn, a self-service snack bar, is also located in the West Campus Union and is open from 9:00 a.m. until 12:30 a.m. each day except Saturday. All types of snack and sand-

wich items are available here. The Graduate Center has a cafeteria open at meal hours and a coffee lounge which is open until 11:00 p.m. Because of the large number of those served in the dining halls, it is not possible to arrange special diets for individual students.

The cost of meals approximates \$3.25 to \$3.75 per day, depending upon the needs and tastes of the individual.

Student Health

One of the prerequisites for gaining the most from the University experience is a sense of well-being. The aim of the University Health Service is to provide medical care and health advice necessary to help the student enjoy his privilege of being a part of the University community. To serve this purpose, both the University Health Service Clinic and the University Infirmary are available for student health care needs.

The main components of the Health Service include the University Health Services Clinic, located in the Pickens Building on West Campus, and the University Infirmary on the East Campus. Emergency transportation, if required, can be obtained from the Duke Campus Police. Residential staff personnel should be consulted whenever possible for assistance in obtaining emergency treatment.

The facilities of the University Health Services Clinic are available during both regular and summer sessions to all currently enrolled full-time students. The facilities of the University Infirmary are available during the regular sessions only from the opening of the University in the fall until Graduation Day in the spring to all currently enrolled full-time students.

The payment of tuition entitles the Divinity student who is taking a minimum of 7 hours to full student health privileges.

Since the Student Health Program does not cover students while away from the Duke Campus, it is imperative that student pastors and assistant pastors (winter and/or summer) who are subjected to the hazards of highway travel with great frequency, secure complementary health and accident insurance for the full twelve month period. Students whose course load entitles them to full coverage under the Student Health Program are eligible to secure a complementary insurance policy, providing protection for the entire calendar year, through the University. Costs and details of the complementary policy are available from the Director of Admissions and Student Affairs. At the time of registration, a student must enroll in this complementary insurance program or sign a waiver of liability statement regarding health care and claims. Students in internship programs carrying less than seven semester hours in any given semester are strongly encouraged to apply for this insurance. Foreign students are required to hold this or another acceptable policy.

Married students are expected to be financially responsible for their dependents, providing for hospital, medical, and surgical care as their dependents are not covered at any time by Student Health.

The resources of the Duke University Medical Center are available to all Duke students and their spouse and children. Charges for any and all services received from the Medical Center are the responsibility of the student as are the charges for services received from physicians and hospitals not associated with Duke University.

The Student Mental Health Service, located in the Pickens Rehabilitation Building, is under the direction of Dr. W. J. Kenneth Rockwell. Evaluations

and counseling and/or treatment for matters ranging from ordinary growth and development to the most serious emotional and personal problems are available.

Motor Vehicles

Each student possessing or maintaining a motor vehicle at Duke University shall register it at the beginning of the academic year in the Security Office at 2010 Campus Drive. If a student acquires a motor vehicle and maintains it at Duke University after academic registration, he must register it within five (5) calendar days after operation on the campuses begins. Resident students are required to pay an annual fee of \$10.00 for each motor vehicle or \$5.00 for each two-wheeled motor vehicle. Resident students first registering after March 1 are required to pay \$5.00 for any type of motor vehicle.

At the time of registration of a motor vehicle, the following documents must be presented: state vehicle registration certificate; valid driver's license; and satisfactory evidence of automobile liability insurance coverage with limits of at least \$10,000 per person and a \$20,000 per accident for personal injuries, and \$5,000 for property damage, as required by the North Carolina Motor Vehicle Law.

If a motor vehicle or a two-wheeled vehicle is removed from the campus permanently and the decal is returned to the Traffic Office prior to March 1, there will be a refund of \$5.00 for a motor vehicle and \$2.50 for a two-wheeled vehicle.

Student Organizations

The Student Association. The officers of the Student Association are elected and serve as an executive committee for conduct of the business of the Representative Assembly.

The purpose of the Association is to channel the interests and concerns of Divinity School students to the following ends:

1. To provide student programs and activities;
2. To represent students to the faculty and administration;
3. To represent students with other Duke University organizations; and
4. To represent students in extra-University affairs.

Divinity School Choir. A student organization of long standing is the Divinity School Choir. Membership in the Choir is open to all qualified students. The Choir sings regularly for chapel and at special seasonal programs and services. New members are chosen by informal auditions which are arranged for all who are interested.

Divinity Dames. Divinity Dames is an organization of wives and women students in the Divinity School which offers opportunities for sharing interests and concerns. The Dames program, which includes a variety of speakers, small interest groups, and special projects, seeks to encourage and provide ways for wives to become a more integral part of the Divinity School community. Some activities are planned annually to include husbands and families. Faculty wives are also invited to attend Dames meetings.

The Duke Student Field Work Association. The Duke Student Field Work Association is the organization of students who participate in the Field Education Program.

At least six meetings per year are held for the purpose of fellowship and preparation for the Field Education responsibilities.

Support Services

A special committee, composed of the Director of Admissions and Student Affairs and at least seven students and spouses, plans and carries out an extensive and varied program of support services for the community each year.

These include community-wide dinners for faculty, staff, students, spouses, and families; weekend retreats; student-faculty dialogues on Fridays in the student lounge; group counseling experiences in personal growth groups, sensitivity groups, and marriage enrichment groups; special sessions and classes for spouses; and week-long retreats at Interpreters' House.

In addition to these support services programs, the Director's Office provides information and guidance for students and spouses who are seeking counseling—personal, marital, financial, or vocational. The personnel of Duke University and Duke Medical Center help with these counseling needs.

Conscious efforts are made to create and maintain an atmosphere of concern and support within the Divinity School community.



4

Financial Information

Fees and Expenses

Estimated Living Expenses. The total cost for a student to attend the Duke Divinity School varies according to individual tastes and requirements; however, experience indicates that a single student may expect to spend a minimum of \$3,000, with an average of \$3,400, and a married couple may expect to spend a minimum of \$5,500.

Housing Fee. The charge for each person in a double room for the academic year is \$393 in the Graduate Center. A limited number of single rooms are reserved for returning students.

The fee for Town House Apartments is \$617 for the academic year on the basis of three students to an apartment. Utility charges are not included in these fees.

Housing fees are subject to change prior to the 1974-75 academic year. A \$50 deposit is required on all reservations.

No refund on housing fees is made to students who withdraw after the date of registration, except for those who involuntarily withdraw to enter the armed services. Such refunds will be made in accordance with the University's established schedules.

For further information on housing facilities, see Living Accommodations in the chapter on Student Life.

Master of Divinity and Master of Religious Education Candidates. The table below lists basic minimum expenditures. In addition to the fees cited here, there is an admission fee of \$30.00 which is applied to the first term bill and a room deposit of \$50.00. See relevant sections in Admissions and Housing for full details.

	Per Semester	Per Year
Tuition—M.Div. and M.R.E.	\$750.00	\$1,500.00
Approximate Cost of Meals	375.00	750.00
Room (double) Graduate Center	196.50	393.00

Tuition will be charged at the rate of \$60.00 per semester hour. The figures shown are for a program carrying 25 semester hours per year. Students will be charged for additional hours of course enrollment, but in no case will the total tuition charge for the six semesters (four semesters or two academic years in the case of M.R.E. degree program) cumulatively exceed the total of three academic years of study at the current tuition rate. Tuition accumulated in the course of studies attaining the same will entitle students to enroll for courses thereafter free of charge.

Master of Theology Candidates. A student who is a candidate for the Th.M. degree will be liable for tuition on the basis of 24 semester hours at the rate of \$62.50 per semester hour. All other costs and regulations for the Th.M. degree are the same as those for the M.Div. and M.R.E. degrees.

Special Student. A special student is one who is enrolled for academic credit, but who is not a candidate for a degree at that time. The tuition will be charged on an hourly basis. Other costs and regulations are the same as those for the M.Div. and M.R.E. candidates. No financial aid is available.

Audit Fee. Anyone seeking to audit a course in the Divinity School must, with the consent of the instructor concerned, secure permission from the Dean's office. In accordance with the general University practice, a fee of \$40.00 per course will be charged all auditors who are not enrolled students.

Athletic Fee. Divinity School students may secure admission to all regularly scheduled University athletic contests held on the University grounds during the entire academic year by payment of the athletic fee of \$25.00 per year, plus any federal tax that may be imposed. The fee is payable in the fall semester.

Payment and Penalty. The tuition is due and payable not later than the day of registration for that semester. In unusual circumstances, a student may secure permission of the Dean to delay registration, provided it is not beyond the first week of classes and the student pays the \$10.00 late registration fee. No student is admitted to classes until arrangements are made with the Bursar of the University for the settlement of fees.

Tuition refund will be made when a student involuntarily withdraws to enter the armed services or dies during the course of the semester. Refund for voluntary withdrawal will be according to the following schedule: before the beginning of classes: full refund; during the first or second week of classes: 80 percent; during weeks 3-5: 60 percent; during the sixth week: 20 percent; no refunds after the sixth week. Tuition or other charges paid from grants or loans will be restored to those funds, not refunded or carried forward.

A student who is reported by the Bursar's Office as delinquent in his account will be debarred from credit in courses and will not be approved for graduation until all indebtedness has been settled.

Motor Vehicle Registration Fee. There is a \$10.00 registration fee for all automobiles (\$5.00 for two wheeled motor vehicles) used on campus. For specifics see page 14 in chapter on Community Life.

Student Financial Aid

A student should select his school on the basis of educational opportunity. At the same time financial consideration will be a legitimate and often

pressing concern. Each student should formulate at least a tentative plan for financing his entire seminary education. Although the exact method of financing the full theological degree may not be assured at the beginning, a student should have a clear understanding of the expenses and his sources of income for the first year and the assurance that there exist ways of financing subsequent years.

The Committee on Financial Aid will counsel the student concerning financial needs and possible resources. There is constant review of available resources in order to assist the greatest number of students. However, the basic financial responsibility belongs to the student who is expected to rely upon personal and family resources and earning and borrowing power. Other resources may include the student's church, civic groups, foundations, and resources of the school which may include grants, loans, field work grants, and employment. It is the goal of the Financial Aid Office to assist each student in planning his financial program so that as little indebtedness as possible will be incurred.

The total amount available through the Divinity School is limited. Further, the conditions set forth by the individual or institutional donors determine the circumstances under which the grants can be made. Almost without exception the donors require ecclesiastical endorsement and/or a declaration of ministerial vocational aim.

The principles regarding the disbursement of financial aid are as follows:

1. Financial aid is recommended on the basis of demonstrated need. All students must file an application which substantiates needs and provides full information on potential resources. This is essential in order to make Divinity School funds available to the greatest number of students.

2. The total amount of financial aid available to any one student cannot exceed the average demonstrated need.

3. Grants will be made within the limits of the conditions set forth governing each source.

4. The conditions at the beginning of the academic year determining financial needs shall be the governing criteria for the year. Financial Aid programs are set up on a yearly basis, except for those students who may enter the second semester and/or those few whose status may change.

5. Financial Aid grants are made on a one year basis. The assistance may consist of scholarships, loans, tuition grants, grants-in-aid, field education grants, and employment which may be worked out in various combinations on a yearly basis. A new application must be filed each year.

6. Application for financial aid may be made: (1) by entering students at time of admission; (2) currently enrolled students in the spring. Notification will be given after Committee approval. Student pastors serving United Methodist Churches can be notified after the pastoral charge and Annual Conference determine salary schedules.

7. Ordinarily financial aid is not available beyond six semesters (eight for pastors on reduced load).

Financial Resources

Personal. In order that both the Church and the Divinity School may be able to extend the use of their limited funds to as many students as possible, a student who desires a theological education should be willing to provide insofar as possible the cost of such an education. Resources may include savings, earnings, and gifts, support or loans, and, if married, earnings of

spouse. In calculating anticipated income, the student first considers his own resources.

Church. Many local churches and conferences or other governing bodies provide gifts and grants for theological education, such as Ministerial Education Funds which provide grants and/or service loans to theological students. The student makes application to his own church, Annual Conference, Presbytery, or other governing body. The Financial Aid Office cooperates with these church agencies in making recommendations and in handling the funds. *United Methodist students and others must be under the care of the appropriate church body to be eligible for church support.* The school cannot compensate for a student's indisposition to receive church funds when such are available on application through the Annual Conference Ministerial Education Fund or other agencies.

The Divinity School, as a member school of the Association of United Methodist Theological Schools, takes cognizance of and subscribes to recommended policy and practice regarding the administration of United Methodist Church funds for student financial aid as adopted by the Association, June 15, 1970, and as bearing upon tuition grants, as follows:

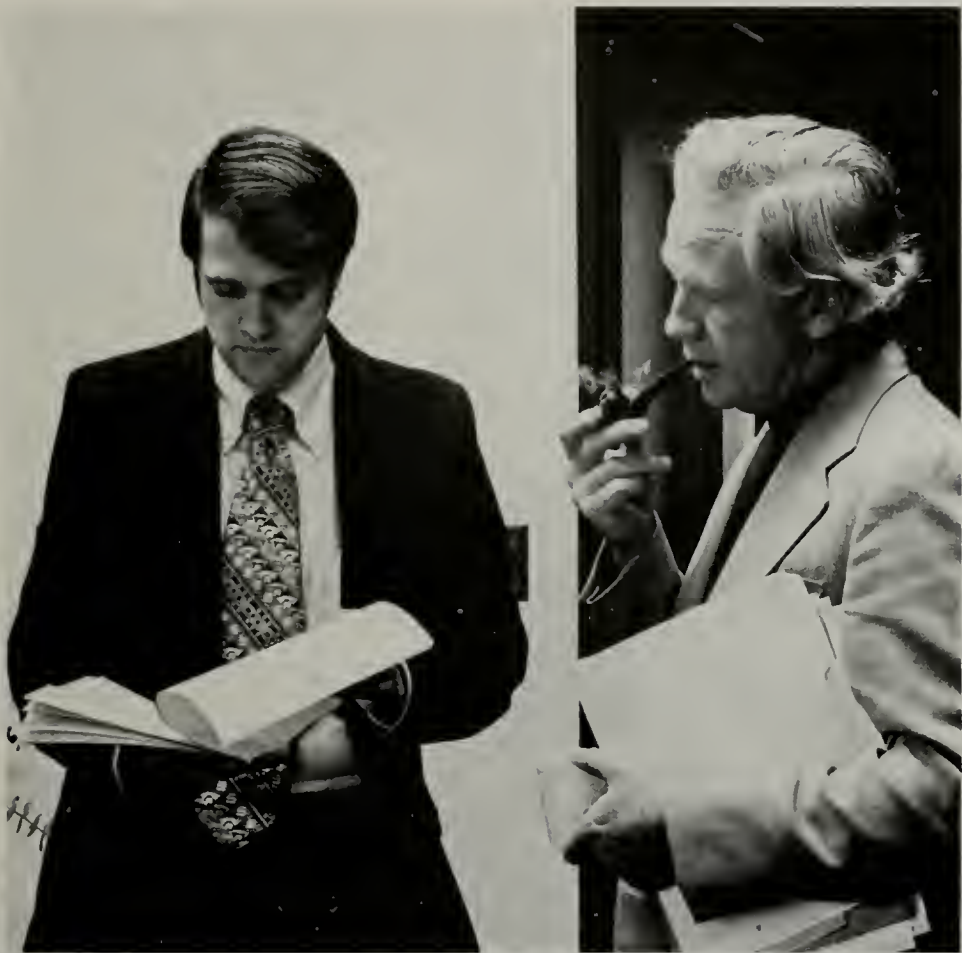
"Resources for tuition grants, scholarships or the like are primarily available to students with declared vocational aims leading to ordination or recognized lay ministries and supported by commendation or endorsement of appropriate church representatives. At the same time, we believe that consideration for a tuition grant may be accorded to students who adequately indicate conscientious concern to explore, through seminary studies, a recognized church-related vocation. Finally, it is our judgment that, where the above mentioned conditions are deemed to be absent respecting a candidate for admission, the decision to admit such a candidate should be without the assurance of any tuition subsidy deriving from church funds." (AUMTS Minutes, June 15, 1970.)

Divinity School Scholarships. A limited number of scholarships are available to encourage qualified students to pursue their preparation for the Christian ministry. Such students ordinarily will not be eligible for remunerative employment during the academic year. When a student holding a scholarship is permitted to engage in remunerative employment, it is understood that adjustments may be made in the total scholarship and financial aid program for that student.

Junior Scholarships. Junior scholarships are available to a limited number of entering students of the junior year who are candidates for the Master of Divinity degree and are awarded on basis of academic record and promise of usefulness in Christian ministry. These scholarships are for the amount of up to \$750 depending upon demonstrated need. Tuition grants in varying amounts are also available up to full tuition if demonstrated need warrants. Further, if the student applies, he may anticipate placement for the Summer Endowment and Field Education Program. Junior Scholarships are not renewable.

National United Methodist Scholarships. The General Board of Education of the United Methodist Church makes available two \$500 scholarships to rising middlers who have made outstanding records in the first year class. The Department of the Ministry offers these scholarships to students preparing for the parish ministry.

Middler Scholarships. Ordinarily five Middler Scholarships of up to \$750 are made available to rising middlers on the basis of academic attainment, character, and promise for the Christian ministry. The exact amount of the scholarship is dependent upon demonstrated need of the student.



Senior Scholarships. Two Rowe Scholarships for Seniors and five additional Senior Scholarships in amount of up to \$750, depending on demonstrated need, are awarded to rising seniors who have achieved academic excellence and who give unusual promise of service in the Christian ministry.

Foreign Student Scholarships. In cooperation with the Crusade Scholarship Committee of The United Methodist Church and other authorized church agencies, students are selected and are admitted to courses of study. Scholarships for such students are provided from the Lewis Clarence Kerner Scholarship Fund and from individual churches and private philanthropy.

Tuition Grants. These are available in amounts commensurate with demonstrated need as adjudged by the Committee on Scholarships and Financial Aid. Entering students may apply, on notice of admission, by submitting the Financial Aid Inventory to the Office of Financial Aid. Enrolled students may apply by annual renewal of their Financial Aid Inventory. Because of the purpose and attendant educational objectives of the school, resources for tuition grants are primarily available to students with declared ministerial aims or those wishing to explore a ministerial vocation leading to ordination or recognized lay ministries.

Field Education Grants. Varying amounts are made available through the Divinity School to students who choose to participate in the Field Education Program. The Field Education Office and Financial Aid Office work together in determining placement and grant amount. This program includes the following: (1) summer assistants, (2) winter assistants, and (3) student pastors. See full description under the section on Field Education.

Loans. Loan funds held in trust by the University, as well as United Methodist Student Loans and funds supplied by the federal government, through the National Defense Education Act of 1958, are available to qualified students. Submit application by July 1.

Unless otherwise indicated, all correspondence concerning financial aid should be directed to: Financial Aid Office, The Divinity School, Duke University, Durham, N. C. 27706.

Employment. Students or wives desiring employment with the University should apply to the Director of Personnel, Duke University, Durham, North Carolina. Students or wives make their own arrangements for employment either in the city of Durham or on campus.

Financial Aid Resources

Certain special funds have been established, the income from which is used to provide financial aid through scholarships and Field Education Grants for students wishing to secure training in preparation for Christian ministry. The resources listed below include endowed funds and sources of annual contributions.

R. Ernest Atkinson Legacy. Established in 1952 under the will of the Reverend R. Ernest Atkinson, Trinity College Class of 1917, of Richmond, Virginia.

Emma McAfee Cannon Scholarship. Established in 1969 by Bishop William R. Cannon in memory of his mother, Emma McAfee Cannon, is designated to assist students from the North Carolina Annual Conference of the United Methodist Church who are studying for the pastoral ministry and planning to spend that ministry in the North Carolina Conference.

Cleland Scholarship Fund. Established in 1963 by Alice Mead Cleland and James T. Cleland to provide travel expenses for a graduating senior and spouse, the recipient is chosen annually for a year's appointment as an assistant minister in the Church of Scotland.

E. M. Cole Fund. Established in 1920 by Mr. Eugene M. Cole, a United Methodist layman of Charlotte, North Carolina.

Dickson Foundation Awards. Established by the Dickson Foundation of Mount Holly, North Carolina, to provide assistance to students who demonstrate financial need and superior ability. Preference is given to children of employees of American and Efirid Mills and its subsidiaries, to residents of Gaston, Caldwell, and Catawba Counties, and to North Carolinians.

The Duke Endowment. Among the beneficiaries of the Duke Endowment, established in 1924, are the rural United Methodist churches of the two North Carolina Conferences. Under the Maintenance and Operation Program, Field Education Grants are available for Duke Divinity School students to serve

in rural United Methodist churches under the Endowment and Field Education Program.

N. Edward Edgerton Fund. Established in 1939 by Mr. N. Edward Edgerton, Trinity College Class of 1921, of Raleigh, North Carolina.

George D. Finch Scholarship Fund. Established in 1972 by Mr. George David Finch, Trinity College Class of 1924, of Thomasville, North Carolina.

James A. Gray Fund. In 1947 Mr. James A. Gray of Winston-Salem, North Carolina, presented this fund to the Divinity School for use in expanding and maintaining its educational services.

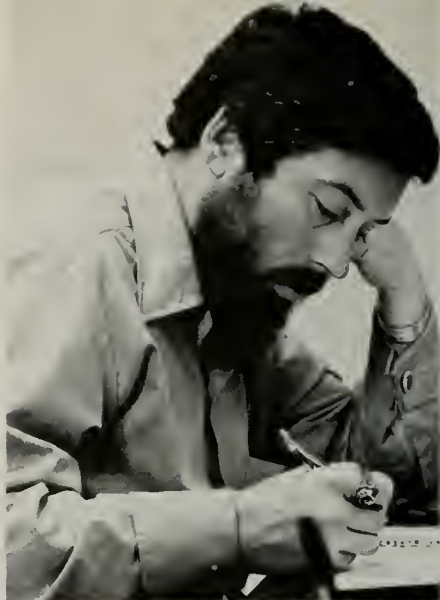
P. Huber Hanes Scholarship. Established by the late Mr. P. Huber Hanes of Winston-Salem, North Carolina, Trinity College Class of 1900, as a scholarship fund for Duke University, a portion of which is used to provide financial assistance for Divinity School students.

Richard R. Hanner, Jr. Scholarship. Established in 1973 by friends of the late Richard R. Hanner, Jr., Trinity College Class of 1953, to support advanced work in Christian education.

Franklin Simpson Hickman Memorial Fund. Established in 1966 by Mrs. Veva Castell Hickman as a memorial fund in memory of her husband, who served as Professor of the Psychology of Religion, the Dean of the Chapel of Duke University, and the first Preacher to the University. The income of the fund will support a regular visiting lecturer in preaching and financial aid to students who wish to specialize in the psychology of religion.

George M. Ivey Scholarship Fund. Established in 1948 by a gift of Mr. George M. Ivey, Trinity College Class of 1920, of Charlotte, North Carolina.





Charles E. Jordan Scholarship Fund. Established in 1969 by the family of Charles E. Jordan, former Vice President of Duke University.

Lewis Clarence Kerner Scholarship. Established in 1959 by Beatrice Kerner Reavis of Henderson, North Carolina, in memory of her brother and designated for the assistance of native or foreign-born students preparing for service in world Christian mission.

Laurinburg Christian Education Fund. Established in 1948 by members of the First United Methodist Church, Laurinburg, North Carolina.

Myers Park Scholarship Fund. Established in 1948 by members of the Myers Park United Methodist Church, Charlotte, North Carolina.

W. R. Odell Scholarship. Established in 1946 by the Forest Hills United Methodist Church, Concord, North Carolina.

Gilbert T. Rowe Memorial Scholarship Fund. Established in 1960 through the generosity of Divinity School alumni and friends of the late Professor of Systematic Theology.

Elbert Russell Scholarship. Established in 1942 by the Alumni Association of the Divinity School in honor of the late Dean of the Divinity School and Professor of Biblical Theology.

Earl McCrary Thompson Scholarship. Established in 1974 in honor of the late Earl McCrary Thompson, Trinity College Class of 1919.

Hersey E. Spence Scholarship. Established in 1947 by the Steele Street United Methodist Church of Sanford, North Carolina, in honor of their former pastor and late professor in the Divinity School.

The United Methodist Church. The United Methodist Church makes a substantial contribution to the Divinity School by designating a percentage of its Ministerial Education Fund and World Service Offerings for theological education.

The general Board of Education makes available annually two National United Methodist Scholarships having a cash value of \$500 each.

The Divinity School Fellowship. A group of interested laypersons who provide support for students with demonstrated need.

Dempster Graduate Fellowships. The United Methodist Board of Education offers two fellowships each year for graduates of United Methodist theological schools who are engaged in programs of study leading to the Ph.D. degree in Religion. A number of Divinity School graduates have held these fellowships.



5

Field Education

The Theological Perspective

Field education for ministry is a real, authentic learning-serving context where genuine encounter produces growth in ministry competence and self-understanding. As the clinical dimension of theological education, field learning is designed to: (1) help the student develop his own vocational self-identity as a minister by providing situational experimentation with a variety of ministry tasks; (2) provide a ground for the testing and reconstruction of theological, psychological, and sociological concepts; (3) develop the ability to do critical and reflective thinking by relating theory to experience; (4) help the student formulate and experimentally refine his own unique ministry skills to achieve an acceptable level of professional competence; (5) integrate academic studies, experiential discovery, and reflective insights into a personal spiritual foundation that produces a confident and effective ministry.

An Educational Program

Field education is designed to place Divinity students in situations where they can bring their theological concepts to bear upon the problems and dilemmas of real life; where they can develop skill in ministerial functions; where they can bring the perceptions of personal experience to bear on their reflective studies; and where these perceptions may be integrated into the student's life and expressed in effective ministry behavior.

A field context has built into it such specific learning components as: student-made learning contracts, field supervision and learning guidance, reflection groups, peer groups, investigation-research projects, seminars, integrative tutorials, directed readings, and evaluation processes. These elements constitute the academic discipline that connects experience into meaningful learning and provides the basis for legitimate educational credit.

Field Education Credit Requirements

In an appropriate effort to sustain the learning focus of field education, the faculty has approved the following credit requirement plan. One unit of approved Field Education work is required for graduation certification in the Master of Divinity degree program. A unit is defined by one term placement, either a summer term of ten weeks or a winter term of thirty weeks at 16 hours per week. To be approved, the field placement program must have qualified and sustained supervision, adequate ministry tasks capable of producing genuine learning, and effective evaluation. The program must allow the student to participate in a learning group organized by the Director of Field Education. A student may satisfy the credit requirement by: (1) pre-enrolling in a peer group concomitant with the approved term placement; (2) acceptable completion of an approved internship, or a quarter of clinical pastoral education, or a senior Ministering-in-Context Project; or (3) a special project in a student pastorate appointment.

To qualify for credit the student must preregister for the approved placement, develop and complete a learning contract with acceptable quality of work, cooperate with the supervisor, participate in the assigned learning groups and seminars, and prepare an evaluation of the project. Evaluation and grading will be done jointly by the field supervisor, student, and peer group leader, utilizing self-assessment, a rating scale, and a written report.

Additional credit is associated with various course offerings and practicum projects listed in the section on courses of instruction. These particular credits are independent of the required Field Education Unit and may not be substituted for it.

Field Settings for Ministry Development

Field placements are usually made in settings that have been developed and approved by the Divinity School. The criteria for acceptance of a field



setting for learning and service include: (1) a complete description of the setting and the job to be performed; (2) an identification of a wide variety of ministry functions and tasks to be done; (3) the agreement of a lay committee to share in the student's guidance and evaluation; (4) an adequate funding plan; (5) the provision of competent supervision on a regular basis either by the pastor, agency director, or a specialist assigned for this purpose; (6) the participation in reflection and evaluation procedures by pastor, laymen, and related agency personnel; (7) the development of a performance contract with the agency or parish which summarizes these agreements.

A wide variety of ministry settings is available for varying student interests: parish settings include rural, suburban, central urban, cluster groups, larger parish patterns, staff team ministries; social agency settings include a settlement house, Human Relations Commission, Women-in-Action, rest homes, social services center, mental health clinics; institutional settings include hospitals, mental health institutions, prisons, youth rehabilitation centers, mental retardation center, retirement homes and government agencies; campus ministry settings include positions on the campus of a variety of schools; resort ministries in the summer term, and youth camps.

Internship Program

An internship assignment embraces both a full-time salaried position and a learning commitment in a single context over a period of time ranging from nine to twelve months. These assignments are designed to engage the student in considerable depth in particular ministry skills in a setting relevant to the vocational area of interest. They must encompass an advanced level of specialized field experience which is more complex and extensive in its learning potential than the basic field education program short-term placement. The internship may be individually designed to meet the needs and interests of the student, provided that the plan includes a student learning contract, an agency performance contract, approved supervisory standards, an investigation-research project acceptable to the assigned faculty adviser, participation in either a reflection group or seminar, and enrollment for course work in a nearby college or university. When these components are satisfactorily met and the evaluation reports are filed, credit for up to 6 semester hours may be assigned for the internship. No additional academic credit may be accumulated during the internship year. Grading for the 6 semester hours will be on a pass/fail basis.

Internship settings may be student initiated or negotiated by the School. In either case an agency contract covering all agreements must be made and filed with the Director of Field Education. General settings currently available for internship placement include: campus ministry and college chaplaincy positions; parish ministry positions—such as associate pastor, parish director of education; social agency and institutional positions—both secular and church oriented; a World Mission Internship of one to three years of national or overseas service; and occasional governmental positions. Other internships in the church or in specialized ministries in the secular world may be planned in consultation with the Director of Field Education.

To be eligible to register for an internship, the students must have completed at least two full years of their seminary curriculum and be registered as a student in good standing in the Divinity School. Application forms and processing for internships will be done through the Office of Field Education.



Students Serving As Pastors

Students frequently serve as pastors of churches, or part-time associates, during the period of their study in the Divinity School. These appointments are made by the appropriate denominational official or body. Although the Divinity School recognizes this arrangement, the student should have the approval of the Director of Field Education, as agent of the Dean, before accepting an appointment as pastor or associate pastor.

The Field Education office cannot make these appointments. This is within the jurisdiction of denominational authorities, and students should initiate their own arrangements. The Field Education office, however, will provide current information concerning pastoral appointments open to students and will send references upon request to ecclesiastical officials. Salaries and other forms of remuneration for this pastoral service must be reported to the Financial Aid Secretary of the Divinity School when application is made for financial aid from the school.

Students who serve in these capacities ordinarily may enroll in not less than 7 or more than 10 hours per semester, thus requiring, in most cases, four academic years to complete the Master of Divinity degree. Relaxation of this regulation requires the permission (on the appropriate form) of the supervising church official, the Director of Field Education, and the Director of Academic Affairs. Further, if the student's residence is located more than 50

miles from the campus, he will be required to live on campus during the academic week. Any departure from this requirement must be negotiated with the Director of Field Education.

In keeping with the School's goal to develop professional competence in ministry, students should use their pastoral appointment as a learning context for field education programs initiated by the School. Special seminars and reflection groups may be arranged in consultation with students to advance their professional growth and performance. For particular field learning projects, a supervisor may be assigned to guide the pastor's learning activity in his parish. Periodic evaluation will be expected from both supervisors and pastors. The required field education units may be done in the pastor's parish, if all the conditions outlined for credit are met, and all reports are completed and filed at the appropriate time.



6

Program Information

Degree Programs

The academic work of the Divinity School embraces three degree programs. These are: the Master of Divinity degree (M.Div.) ordinarily of three academic years; a one-year program beyond the basic degree, the Master of Theology (Th.M.); and a third program of two academic years leading to the degree of Master of Religious Education (M.R.E.). All are graduate-professional degrees. Admission to candidacy for the Master of Divinity and Master of Religious Education degrees presupposes the completion of the A.B. or its equivalent.

Students preparing for ordination to the Christian ministry and requiring appropriate graduate-professional education will enroll for the Master of Divinity degree. Students whose acquired academic standing, under this basic degree program, entitles them to further specialized study may advance their command of selected theological disciplines by applying for an additional year of studies leading to the Master of Theology degree. Together, these two degree programs constitute a sequence. Although the Master of Divinity degree fulfills requirements for ordination by prevailing ecclesiastical standards, the Th.M. program may assist in assuring a larger measure of professional preparation. Application for admission to the Th.M. program is open to graduates of other schools who have completed the basic theological degree.

The Master of Religious Education degree program is designed to prepare qualified persons, ordinarily not seeking ordination, for a ministry of Christian education in local churches or other organizations. The course of study is arranged to provide grounding in Biblical, historical, and theological disciplines as essential background for instruction in and exercise of professional competence in curricular planning, teaching methods, and supervision of educational programs for various age groups.

The specific requirements for each of these degrees are found in the succeeding pages. It is evident that completed course work cannot be credited toward more than one degree. Reciprocal transfer of credit for course work

taken under either the M.Div. or the M.R.E. program requires the permission of the Director of Academic Affairs.

Doctoral Studies Accredited by the Graduate School

The Divinity School provides a substantial body of course offerings at an advanced level in Biblical, historical, and systematic and contemporary theological disciplines that are accredited alike by the Graduate School and the faculty of the Divinity School, and lead to the Doctor of Philosophy degree. Sharing responsibility with the University Department of Religion for staffing and curricular provision of this course of study, the Divinity School is the principal contributor to the program of graduate studies in religion. However, since the Ph.D. in religion is certified and awarded under the Graduate School, the doctoral student's admission and matriculation are administered under that division of Duke University.

With few exceptions, most courses in the *Bulletin of the Divinity School* carrying a 200 number or above and belonging to the fields noted above are applicable to doctoral programs of study. These courses are open to qualified M.Div. or M.R.E. students by permission of the instructor.

Qualified persons who desire to pursue studies leading to the degrees of M.A. or Ph.D. in religion, under the administration of the Graduate School, are advised to apply to the Dean of that School. Inquiries concerning fellowships or specific requirements of the Program of Graduate Studies in Religion may be addressed to Professor D. Moody Smith, Jr., Director, 209 Divinity School.

The Basic Theological Degree—Master of Divinity

The faculty of the Divinity School constantly endeavors to review the curriculum as a whole and to tailor individual courses to meet the needs of a rapidly changing world. Major curricular revisions were instituted in 1948, 1959, and 1967. The curriculum is, therefore, not static but dynamic and is always subject to emendation by the faculty.

This degree program is structured to elicit a positive response to (1) the challenge to provide an adequate professional education—education for ministry; (2) the needed variability of ministries in today's complex world; (3) the norms of university education; and (4) the Christian tradition.

Aims of the Curriculum. The aims of the basic degree program focus upon four goals, four areas of personal and curricular responsibility, four life-long tasks which should be strongly advanced during the seminary years.

1. The Christian Tradition. To acquire a basic understanding of the Biblical, historical, and theological heritage.

2. Self-Understanding. To progress in personal and professional maturity—personal identity, life style as an instrument of ministry, major drives, handling of conflict, resources, professional competency, and so forth. This is to be coupled with a sensitivity to the world in which we minister—its social forces, its power structures, its potential for humanization and dehumanization.

3. Thinking Theologically. To have the ability to reflect about major theological and social issues and to define current issues in theological terms and theological issues in contemporary secular terms.

4. **Ministering-in-Context.** To have the ability to conceptualize and participate effectively in some form of contemporary ministry.

Goals of such scope cannot be neatly programmed in any curriculum, and the degree of achievement (in seminary and beyond) will vary with the individual and his own motives and incentives.

The Basic Curriculum—General Description. The basic curriculum leading to the Master of Divinity degree provides for foundational courses in Biblical, historical, theological, and ministry studies, representative of the tradition and regarded as indispensable background for subsequent elective work and individual program information.

These required courses total 24 of the 75 semester hours necessary for graduation. They are OT 11, NT 18, CH 13, CH 14, AC 28, CT 32, and CHE 33. The opportunity of advanced standing adds further variability to the academic program of the junior student, depending upon the nature and quality of his undergraduate academic work. A total of 51 semester hours is available to the student for working out an individualized program of studies leading to specialized preparation in academic depth and for purposes of professional ministerial competence.

Required courses may be staffed by one or more professors and are planned to treat subject matter both in scope and depth at the graduate level.

Especially designed courses for entering students of the junior year in the area of Church and Ministry offer experience in group learning and are strongly recommended. These courses are introductory to various aspects of the work of the Church and its ministry in relation to altering societal contexts. These courses are CM 9, CM 10, PP 70, CT 108, and CP 157 (for exact description of these courses, see the section on Courses of Instruction).

The formulation of the student's course of studies is guided by certain broad but normative recommendations for area distribution of courses and by the advice and counsel of appointed faculty advisers or authorized directors.

Students and advisers are directed to read diligently the paragraphs on elective studies and professional aims and distribution of elective studies of the section entitled Administration of the Curriculum.

All academic programs are subject to review and emendation by the Dean and the Director of Academic Affairs for the fulfillment of the aims of the curriculum. The declared vocational and professional objective of the student is of central importance both to the student and his faculty adviser in planning the student's comprehensive study program.

Six semesters of residential study are ordinarily required for the completion of the degree. With permission of the Director of Academic Affairs, certified nonresidential study, not exceeding the equivalent of 24 semester hours, may be permitted to a candidate for the basic degree.

The normal course load per semester is 12 or 13 semester hours. A student with demonstrated competence may, with the consent of his academic adviser and the Director of Academic Affairs, enroll for an additional 2- or 3-hour course in the middler and senior years. However, it is expressly noted here that the delimitation of the semester course-hour load and the total credit hour requirement for graduation entitles both student and instructor to expectations of substantial student investment and accomplishment in individual courses. The emphasis of the curriculum is upon depth and competence rather than excessive scope.

General Features of the Basic Curriculum. The following is a brief summary of the basic curriculum:

1. Seventy-five semester hours and six semesters of residency are required for graduation.

2. Each student is required to complete one *approved* assignment in field education (with or without remuneration) under supervision. Such assignments might include an internship, a summer of full-time work, two semesters of part-time work, or involvement in church or community service. The essential criteria for graduation credit are that the amount and quality of supervision be approved by the Field Education Office, and that the student be required to evaluate and correlate the experience directly.

3. A normal academic load is four courses with credit.

4. Professionally oriented courses for entering students are offered in the fall semester of the junior year in the area of Church and Ministry.

There are special allowances of up to 3 semester hours of credit for field education projects under faculty supervision; up to 6 semester hours credit for independent study; up to 6 semester hours clinical or internship credit; ordinarily up to 6 semester hours of cognate studies of graduate standing in Duke University, with the advice of the student's academic adviser and the Director of Academic Affairs. Enrollment for cognate graduate study outside the University requires the approval of the Director of Academic Affairs. This includes studies abroad.

THE CURRICULAR PARADIGM*

Junior Year

<i>Fall Semester</i>	s.h.	<i>Spring Semester</i>	s.h.
Old Testament 11 (or OT elective for advanced standing)	4	New Testament 18 (or NT elective for advanced standing)	4
Church History 13 (or CH or HT elective for advanced standing)	3	Church History 14 (or CH or HT elective for advanced standing)	3
Elective	2 or 3	Elective	3
Elective	3	Elective	3
Total	12 or 13	Total	13

Middler Year

<i>Fall Semester</i>	s.h.	<i>Spring Semester</i>	s.h.
Systematic Theology 32	4	Christian Ethics Introduction 33	3
American Christianity 28	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Total	13	Total	12

*Senior year—elective courses, 12 s.h. fall and spring.

Administration of the Curriculum

General Regulations. The following regulations pertain to students enrolled in the regular curriculum:

1. Full-time students are required to enroll for the required courses of the curriculum or for alternative courses offered for advanced standing in the order provided by the master schedule of the curricular paradigm.

2. Students in programs leading to either the Master of Divinity or Master of Religious Education degree are required at the time of each registration

period to plan their course of study with the consultation and approval of their assigned faculty advisers. Such programs are subject to the review and approval of the Committee on Academic Standing, the Dean, and the Director of Academic Affairs.

3. Students in candidacy for the Master of Divinity degree who serve as full-time pastors or work more than 15 hours per week in addition to their academic course work are advised that their programs will usually require a fourth academic year. Modification of this schedule requires the approval of the Director of Academic Affairs on recommendation of the Director of Field Education.

a. Students with pastoral charges, or comparable extracurricular responsibilities, ordinarily will enroll for not less than 7 semester hours nor more than 10.

b. Students who accept pastoral charges in their middler or senior years are required to have the prior approval of the Director of Field Education. Such students will be required to restrict their course work in accordance with regulation 3a stated above.

c. Modifications of these regulations will be scrupulously administered. Academic achievement must be demonstrated before any modification of these requirements is allowed. Since adequate indication of the student's academic proficiency is not available before the completion of the first academic year, no modification of regulation 3a is possible for junior students.

d. Ordinarily a student may not commute more than fifty miles (one way). Students living farther away than this will be required to live on campus during the academic week.

4. Student Assistant Pastors (not pastors-in-charge) may enroll for a full academic load if they are not on probation, if they are under the supervision of the Director of Field Education, and if their field duties involve no more than 15 hours per week.

5. A student in candidacy for the Master of Divinity or Master of Religious Education degree is expected to enroll for no less than 7 semester hours in any semester. Exceptions require approval of the Director of Academic Affairs.

6. Study abroad, with transferable credit toward graduation, may be allowed for a candidate for the Master of Divinity degree by approval of the Director of Academic Affairs. A strong academic record is a prerequisite. Ordinarily, permission for such study may be granted to students who have completed the work of the middler year. Both the institution abroad and a specific course of study proposed must have the prior approval of the Director of Academic Affairs.

7. Transfer of credit to the Divinity School of Duke University, leading to candidacy for the degree of Master of Divinity, ordinarily may not exceed in amount more than one-half of the academic credits (in proportional evaluation) required for fulfillment of degree candidacy (see chapter on Admission).

8. Auditing of courses is permitted on notice to the Director of Academic Affairs and by permission of the faculty instructor concerned. Auditors who are not candidates for degrees are charged \$40.00.

9. Students in candidacy for a degree who secure minor employment outside the channels of the Field Education Office are required to inform the Director of Field Education. Students carrying an outside employment

work load of more than 15 hours weekly will be required to limit their academic load.

10. Ordinarily it is expected that the work for the M.Div. degree be completed in three academic years (four for students on probation, who serve as Pastors, or who serve internship years). Extension of the student's work beyond six years from initial matriculation requires the approval of the faculty.

11. Students may, with permission of the faculty adviser and the instructor involved, take up to 6 hours of independent study. These independent study courses are ordinarily courses at an advanced level which cover material not available in the regular curricular offerings. If students wish to take more than six hours of independent study, they may do so with permission from the Director of Academic Affairs in consultation with the student's faculty adviser and the instructor who directs that program of study.

Advanced Standing. Advanced standing allows entering students to begin work in any given field at a level higher than that of the required curriculum, or to substitute a specialized or cognate course for a required one.

Entering students with substantial undergraduate preparation in areas closely related to required courses of the Divinity School may be eligible for advanced standing. Although a student may be eligible for advanced standing in any subject, it is especially pertinent where students offer undergraduate majors of superior quality in Bible, religion, or philosophy. Students entering with 6 or more semester hours in the Greek language, for example, may enroll in advanced Greek courses (NT 118, NT 119, NT 226, NT 227). The fields in which entering students, by virtue of previous undergraduate study, are most likely to qualify for advanced standing are: Old Testament, New Testament, and church history.

An entering student with not less than 6 semester hours of college credit, and a grade of *B* or better in one or more of these areas, may ordinarily anticipate advanced standing in corresponding required courses. All final transcripts will be studied, and advanced standing will be accorded to those who qualify under this provision.

A student with not less than 3 semester hours of college credit with a grade of *B* or better in one or more of these areas may be granted advanced standing if he passes a qualifying examination. Entering students who qualify under this provision must, on notice of admission, request permission to take this examination.

Students offered advanced standing at the time of matriculation may, after consultation with their faculty advisers, decline such standing and enroll in the required course.

A summary of advanced standing options will be available at the time of registration.

Curricular Provisions and Procedures. Admission to candidacy for the Master of Divinity degree is admission to the regular program of studies. The master schedule constitutes the prospectus for the basic theological degree. The prospectus defines the normal sequence of the student's developing program. Exceptions are excluded unless the student is on a limited program, such as that for student pastors who arrange their studies over four years, or special students.

Students who matriculate for the second semester of the junior year in January must fulfill requirements of the first semester of the junior year the succeeding fall semester.

The curriculum intends to serve graduate-professional aims with max-

imum flexibility. Fifty-one (51) elective course hours are available and may be programmed to satisfy vocational and professional preferences. In planning a course of study, the student, in consultation with his adviser, ought to choose a program which will give him a greater understanding and appreciation of future professional responsibilities. Members of the faculty and staff welcome inquiries.

Professional ministries include those of the parish, preaching, teaching, and pastoral care; ministries of education in local churches and higher education; missions; campus ministry; specialized urban and rural ministries; chaplaincies—hospital, institutional, industrial, and military; teaching; religious journalism; audio-visual communications; church agencies; and ecumenical ministries at home and abroad. For many of these, further specialized training will necessarily be sought elsewhere beyond the basic degree. For all of these ministries the student's program of studies can be shaped for the particular ministry in view.

Students are encouraged to elect one course in each of the following areas or subdivisions of the curriculum beyond the required courses. The course should be selected with a view to the individual student's vocational and professional aims:

American Christianity
History of Religion
Christian Education
World Christianity and
Ecumenics

Biblical Exegesis
Pastoral Psychology
Christian Ethics
Worship and Preaching
Care of the Parish (including
Church and Community)

Students are also encouraged to concentrate, usually in not more than five advanced courses in any one subdivision of the curriculum, in an area directly related to their vocational and professional intention.

The program of each student is subject to review and revision by action of the faculty adviser, the Committee on Academic Standing, the Director of Academic Affairs, or the Dean.

General Information

Ordination and Disciplinary Requirements. Students preparing for ordination are strongly advised to fulfill denominational requirements for study of church polity. United Methodist students must attend to regulations of the *Discipline*, paragraph 344. The following courses have ordinarily been accepted as fulfilling the *Discipline* requirements: CT 32, Christian Theology, CH 139 or CH 140, Methodist Church History, CP 155A, Methodist Polity. Students from other denominations should consult with their appropriate church bodies for specific requirements.

Graduation Credits. It is the responsibility of each student to see that he meets all requirements for graduation and to take his courses in proper sequence. He is also responsible for seeing that any special permission granted him to deviate from the normal program is properly recorded in his personal files in the office of the Director of Academic Affairs.

Grading System. As of the academic year 1971-72, the Divinity School employs the grading scale with the following letters A, B, C, D, and F which have been defined as follows: A, Excellent; B, Superior; C, Average; D, Passing; F, Failure; WP, Withdrew Passing; WF, Withdrew Failing; WI, Withdrew

Illness; W, Withdrew, discretion of the Dean; I, Incomplete; P, Passed; N.C., Non-credit; Z, Year course.

The denotations are defined as follows according to quality points: A, 4; A-, 3.7; B+, 3.3; B, 3.0; B-, 2.7; C+, 2.3; C, 2.0; C-, 1.7; D+, 1.3; D, 1.0; D-, 1.0; F, 0.

In all courses where the instructor considers attendance a necessary part of the work of the course, a student may not receive a grade of over C if his absences total 12 per cent of the regular class periods, and if the absences total 24 per cent of the class periods he may not receive credit for the course.

Incompletes. A student may petition the Director of Academic Affairs to receive a grade of Incomplete in a course. This petition must be filed in writing on the prescribed form with the Director on or before the last official day of classes of the semester in question. Such permission may be granted when a student, through some circumstances beyond his control, such as illness, has been hindered from meeting the course requirements. Adjudication of the petition will rest with the Director and the instructor concerned. The Director will communicate in writing to the student regarding the joint decision and any conditions attached thereto. An Incomplete becomes an F unless it is removed through completion of assigned work by the following dates:

for incompletes incurred in fall semester courses, February 1;

for incompletes incurred in spring semester courses, September 15.

Change of Course or Withdrawal. A student is permitted to change his registration for course work without incurring a penalty during the prescribed drop/add period at the beginning of each semester. The adding of a course requires the permission of the instructor of that course as well as the student's faculty adviser.

No student shall be permitted to withdraw from a course after one-third of the period of instruction of the course without incurring failure, except for causes adjudged by the Director of Academic Affairs to be beyond the student's control. Conditions of emergency and not considerations of convenience shall be regarded as determinative in considering requests.

Graduation With Distinction. Students who achieve a grade point average of 3.85 for overall academic records in the Divinity School are granted the degree of Master of Divinity, Master of Theology, or Master of Religious Education, *summa cum laude*. Students with a grade point average of 3.65 are awarded such degrees, *magna cum laude*. Such distinction is specified on their diplomas.

The Master of Religious Education Degree

The course of study leading to this degree is designed for persons desiring to prepare for leadership and service in the educational ministry of the church.

Admission. Applications for admission to the Master of Religious Education program are evaluated by the same standards as those applicable to the Master of Divinity degree and admission requirements and procedures are also the same. Students planning to specialize in Christian Education should study the sections of this *Bulletin* which contain statements of policy regarding the most appropriate prerequisite studies for theological education and the procedures to be followed in applying for admission.

Requirements. The Master of Religious Education degree usually requires two years, or four semesters, of residence and study and the fulfillment of the following requirements:

1. Sixteen courses selected by the candidate in consultation with the Director of the program, or his representative, twelve of them limited electives and four free electives.

2. A final comprehensive examination.

3. Weekly conferences of candidates with the Director of the program or another resource person. These conferences are required in the first semester of the first year and are arranged in later semesters according to the student's interests and needs.

Program of Study for M.R.E. Degree

Limited electives*	12
Two courses in the Biblical Division	
Two courses in the Historical Division	
Two courses in the Theological Division	
Two courses in the Ministerial Division (other than Christian Education)	
Four courses in Christian Education	
Free electives†	3
Cognate courses in another department‡	1
	<hr/>
	16
Weekly conferences of candidates (required in fall semester, first year)	
Final Comprehensive Examination	

The Master of Theology Degree

The course of study leading to the degree of Master of Theology is designed for graduates of accredited theological schools who desire to continue or resume their theological education for enhancement of professional competence in selected areas of study. Enrollment in the Th.M. degree program is open to a limited number of students who have received the M.Div. (or the equivalent) with superior academic records.

Inquiries on admission may be addressed to the Director of Admissions for referral to the Director of the Th.M. program.

General Requirements. The general requirements for the degree of Master of Theology are:

1. Twenty-four semester hours of advanced studies, with an average grade of B (3.00 average on a 4.00 scale).

2. Superior performance in a comprehensive examination covering the major area of study. As an alternative to the comprehensive examination the student may elect to do a research project in his major area if approved by the supervising professor. This project shall carry 3 s.h. credit, to be counted within the twenty-four hours required.

*Limited electives may be completed through tutorials, if approved by the Director of the program and the instructor(s) involved, provided the total number of tutorials is ordinarily no more than 2.

†Free electives and cognate courses must be chosen by the student in consultation with the Director of the program and subject to the approval of the Director of Academic Affairs.



3. Residence for one academic year.

There are no general language requirements. However, classical or modern languages may be required for certain programs (for example, in Biblical studies, Hebrew or Greek may be required).

The Program of Study. At least 12 of the required 24 hours must be taken in one of the basic divisions of study (Biblical, historical, theological, or ministerial) which shall be designated as the candidate's major, and at least 6 hours in another of the divisions which shall be designated as the candidate's minor. No more than 6 semester hours of work completed in another accredited institution may be transferred and credited toward the degree. Ordinarily, no more than 6 hours may be taken through directed reading, and no more than 3 in any one semester. In the area of pastoral psychology, up to 12 hours may be taken through clinical pastoral education.

The comprehensive examination will be given at the close of the course of study for the degree, ordinarily in May or September.

The entire program of studies and comprehensive examination should be completed within twelve months. In some cases, the time limit may be extended, but in no case beyond three years.

The candidate majoring in pastoral psychology may plan one of three programs or concentrations: a concentration in pastoral theology relating psychology and theological understanding to professional ministry, especially the parish, through coursework and supervised clinical experience; a concentration in pastoral care through coursework and an intern year in Basic Clinical Pastoral Education; a concentration in pastoral counseling through coursework and a year of Advanced Clinical Pastoral Education. In the context of clinical pastoral education various professional goals may be sought, including general understanding and skills in pastoral care and specialization in pastoral counseling and clinical supervision. The Clinical Pastoral Education Program is certified by the Association for Clinical Pastoral Education. Persons specializing in pastoral counseling will be moved toward certification with the American Association of Pastoral Counselors. Course PP 277A (or its equivalent) is considered a prerequisite for a major in pastoral psychology. (The 4 semester hours of credit are not applicable toward the 24 hours required for the degree, although the course will be indicated on the student's transcript). Accordingly, the student majoring in this area should ordinarily make provision for a program extending for a full calendar year beginning the first week in June.

Financial Aid. Candidates for the Th.M. degree are eligible for financial aid with the understanding that prior consideration is given to M.Div. candidates.

Please note in the pertinent sections of the chapter on Financial Information that the charges for tuition and general fee for the Th.M. degree are combined and are made on the basis of the number of semester hours taken, and that in order to be eligible for medical care a student must be taking at least 7 hours.



Black Church Studies

A number of agencies and institutions have made significant contributions to the life of Black people in America. Not one, however, or all of them together, can match the role that the Black Church has played in the Black man's struggle for freedom and dignity. This is probably true because the Black Church has been one of the few places and perhaps the only institution where the hopes and aspirations of Black people could be fully expressed.

Ignored and disregarded by theologian and historian alike, Black Church Studies has emerged to illuminate the Black religious experience and to investigate the positive contribution which the Black Church has rendered to the Black community in particular and to the broader aspects of American culture. Study in this area continues to search for the uniqueness of the Black Church, its ministry, and its community. Based upon what is seen to be the nature and function of the Church for Black people, it is also the hope that strategies for relevant mission and ministry may be developed.

Black Church Studies at Duke Divinity School is an engagement of the Divinity School with the Black Church and the Black community and reflects a new appreciation for the Black Church and for the necessity in theological education for understanding Black culture and its positive contributions to the world in which we live.

At present a curriculum is being developed for Black Church Studies to implement the program and the curriculum. In the summer, 1972, Joseph B. Bethea joined the staff as Director of Black Church Studies. In addition, a Black scholar of achievement and promise, Herbert Edwards, has been appointed to the faculty beginning with the 1974-1975 academic year. Other courses have been and will continue to be offered by Black faculty members in other departments of the University and by scholarly associates in instruction who may be recruited as the need arises.

The Office of Black Church Studies offers counsel and advice to prospective seminarians in undergraduate schools and to anyone who may be considering full-time Christian service as a vocational choice. Since Black seminarians are the *raison d'être* for the Black Church Studies program here, the Director of Black Church Studies desires inquiries into our Black Church Studies Program. This office advises students in the planning of their curriculum, helps them in their Field Education placement, supervises their work there, and also assists in arranging for financial and adjustmental needs. For further information concerning this program, consult Joseph B. Bethea, Director of Black Church Studies, Duke Divinity School, Durham, North Carolina 27706.



8

Continuing Education

The Continuing Education Center and Director

The establishment of a Continuing Education Center and the appointment of a Director of Continuing Education have enabled the Divinity School to offer expanded services of its faculty and facilities in Continuing Education for Ministry. The Charles P. Bowles Continuing Education Center in the new wing of the Divinity School includes a seminar room and spacious study carrels for ministers involved in individual study or in-residence seminars. The Divinity School Library, the Henry Harrison Jordan Loan Library, the growing collection of tape recordings of sermons, lectures, and interviews, the Pickens Communications Center, and *The Duke Divinity School Review* are also available for Continuing Education for Ministry. The Director and the Divinity School Committee on Continuing Education, in cooperation with church leaders throughout the region, provide a year-round program of in-residence seminars and conferences, extension seminars and consultations, and special services to ministers and churches in the vicinity.

Admission and Scholarships

Conferences, churches, and other supporting groups and institutions have made available through the Divinity School certain designated funds to assist in Continuing Education for Ministry. Inquiries, applications for admission, and requests for Continuing Education Scholarships for in-residence seminars and the Summer Institute for Ministry should be directed to Dr. McMurry S. Richey, Director of Continuing Education, Duke Divinity School, Box 4673, Duke Station, Durham, North Carolina 27706.

In-Residence Seminars and Conferences

During the academic year 1973-74 the Divinity School has conducted a series of in-residence Continuing Education programs. Included among the

studies were seminars on Parish Development, Ministerial Career Review, a Black Churchman's Seminar, The Church and The Spirit, Charismatic Movements, Theology for Black Churchmen, Contemporary Theology, Theology in the South Today, Communications Workshop, Christianity in the Holy Land, and a Personal Growth Laboratory.

Extension Seminars and Consultations

Extension services in Continuing Education for Ministry include a varied series of seminars, consultations, and conferences held in cooperation with District and Conference Continuing Education leaders and other Church agencies throughout North and South Carolina and Virginia. These are led by outstanding Church leaders and Divinity School faculty. For specific proposed offerings, write to Dr. McMurry S. Richey, Director of Continuing Education, Duke Divinity School, Durham, North Carolina 27706.

The Convocation and Pastors' School

The annual Divinity School Convocation and North Carolina Pastors' School, a cooperative endeavor with the North Carolina and Western North Carolina Conferences of The United Methodist Church through the Board of Managers of the Pastors' School, brings ministers, lay persons, students, and faculty together for a series of lectures, sermons, and courses, along with alumni reunions and social occasions.

In the October 29-31, 1973 Convocation, Dr. Brevard S. Childs, Professor of Old Testament, Yale Divinity School, was Gray Lecturer; Dr. James D. Glasse, President of Lancaster Theological Seminary, was Hickman Lecturer; Bishop Robert M. Blackburn of the Raleigh Area and Bishop Earl G. Hunt, Jr. of the Charlotte Area were Convocation Preachers; and six Divinity School faculty members conducted three-session "mini-courses." The program also included minister-student dialogue sessions and alumni reunions.

The 1974 Convocation and Pastors' School, scheduled for October 28-30, includes Dr. Paul Ramsey, Professor of Religion, Princeton University, as Gray Lecturer; Dr. Colin Morris, General Secretary of the Methodist Missionary Society, London, as Hickman Lecturer; Bishops Hunt and Blackburn as Convocation Preachers; eight Divinity School faculty "mini-courses"; a special program on Women in Church and Ministry; and reunions of the Classes of '34, '39, '44, '49, '54, '59, '64, and '69. Further information will be available from Dr. McMurry S. Richey, Director of the Convocation.

Lectures and Symposia

The James A. Gray Lectures. These annual lectures, established in 1950 as part of a bequest made in 1947 by Mr. James A. Gray of Winston-Salem, North Carolina, are delivered in the context of the Divinity School Convocation and North Carolina Pastors' School. The 1973 Gray Lectures on "The Bible as Scripture of the Church" were delivered by Professor Brevard S. Childs of Yale Divinity School.

The Franklin S. Hickman Lectureship. This lectureship established in 1966 as part of a bequest by Mrs. Franklin S. Hickman in memory of her late husband, Dr. Franklin Simpson Hickman, Professor of Psychology of

Religion, Duke Divinity School is an annual event designed to bring a practicing minister of extraordinary qualities to lecture in the Convocation and Pastors' School and to participate in Divinity School classes, worship, and informal sessions with students and faculty. The 1973 Hickman Lecturer on Ministry was President James D. Glasse of Lancaster Theological Seminary.

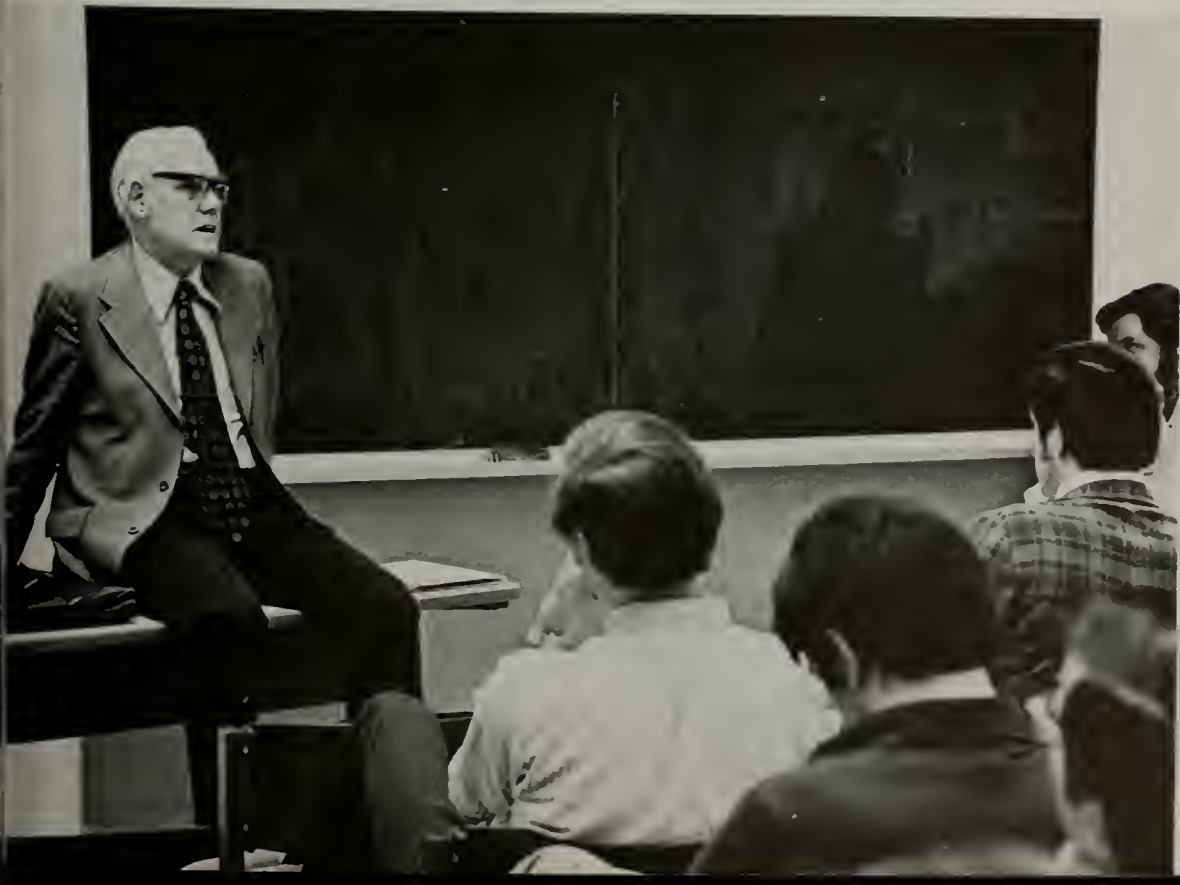
Symposium on Christian Missions. Each year the Divinity School presents a symposium on the world mission of the Church, usually including campus visits by a secretary of missionary personnel and a Duke alumnus serving overseas. The general aims are "to inform students and faculty of the philosophy and work of missions as seen through the personal experience of speakers; to educate present and future ministers so that they will have a vital concern for the promotion of missionary education in the local church; and to evaluate the missionary enterprise as a significant force in the revolutionary world."

Other Divinity School Lectures. The Lecture Program Committee, chaired by the Director of Continuing Education, sponsors a series of public lectures throughout the academic year, for the Divinity School and Duke University community and the ministers, churches, and community of Durham. The 1973-1974 lecture program included the following speakers and topics:

October 3—The Reverend David L. Swain, Visiting Instructor in World Christianity, on furlough from ministry in Japan, "Where Two or Three Millions Are Gathered Together. . . ."

October 24—Mr. Hans Norbert Janowski, Editor of *Evangelische Kommentare*, "The German Peoples' Church in a New Age."

November 3—Dr. Robert Coles, M.D., psychiatrist and author, Visiting Professor in the Institute of Policy Sciences and Public Affairs.



- November 5—Dr. Birger A. Pearson, Department of Religious Studies, University of California in Santa Barbara, "Gnostic Texts from Nag' Hammadi."
- November 7—The Reverend Herbert O. Edwards, Harvard Divinity School, "Black Theology."
- November 14—Dr. Jefferson P. Rogers, Editor, *The Black Church*, "The Hidden Experience."
- November 28—Dr. Martin E. Marty, Professor of Modern Church History, University of Chicago Divinity School, "Sub-Cultures in Search of a Culture."
- February 21—Dr. William A. Wallace, O.P., Professor of Philosophy and the History of Science, Catholic University, "Aquinas and Bonaventura on Creation in Time: A Medieval Controversy."
- March 21—Dr. Charles F. D. Moule, Lady Margaret Professor of Divinity, Cambridge University, "An Unsolved Problem in the Lord's Prayer."
- March 27—The Reverend Herbert O. Edwards, Harvard Divinity School, "The Black Church Against Its Environment."
- March 27-28—Association for Jewish Studies Conference on "Ancient Hebrew Prayer." Professor Moshe Greenberg, Hebrew University, Jerusalem, "The Character and Forms of Prayer in Ancient Israel." Dr. Roland E. Murphy, Professor of Old Testament, Duke Divinity School, "Israel's Psalms: Contribution to Modern Prayer." Other symposium speakers: Professor James Alvin Sanders, Union Theological Seminary, New York; Professor Michael Fishbane, Brandeis University; Professor Jeffrey Tigay, University of Pennsylvania; Professor Kalman Bland, Duke University.
- March 29-31—Women's Interseminary Conference on "Women in Ministry." with Dr. Letty Russell, Union Theological Seminary, New York; and Dr. Jill Raitt, Associate Professor of Historical Theology, Duke Divinity School.
- April 2-3—Dr. Robert McAfee Brown, Professor of Religious Studies, Stanford University, "Where Are We Going in Theology?"

The Summer Institute for Ministry

The 1974 Summer Institute for Ministry (formerly called Summer Clinics) is scheduled for July 1-5, 8-12, with visiting instructors Dr. Rockwell C. Smith, Professor Emeritus of Sociology of Religion, Garrett Theological Seminary, on "The Parish and the Community" and "The Program of the Parish"; and Dr. Ezra Earl Jones, Board of Global Ministries, Office of Research and Survey, on "The Church and the City." Divinity School faculty instructors will be Professors Lloyd R. Bailey, "Death and Dying"; John K. Bergland, "Preaching and Evangelism"; Richard A. Goodling, "Ministry with Special Persons"; Charles K. Robinson, "Faith and Tragedy"; and D. Moody Smith, Jr., "Hebrews." Dr. McMurry S. Richey is Director.

Ministry in the Vicinity

Ministers and churches in and near Duke University are especially welcome to avail themselves of continuing education programs, facilities, and

other services of the Divinity School and its faculty and students. They are invited to attend public lectures, visit with distinguished lecturers, participate in in-residence seminars and conferences, audit selected courses, study in the continuing education carrels, and use the resources of the Divinity School Library, the Henry Harrison Jordan Loan Library, and the tape recordings collection. Divinity School faculty, staff, and students are generally available for preaching, teaching, and other services in churches of the community and region.

The Course of Study School

In cooperation with the Department of Ministry of the Board of Education and the Southeastern Jurisdictional Conference of the United Methodist Church, Professor Paul A. Mickey directs the Course of Study School for pastors of the United Methodist Church. This school is in session for approximately four weeks each summer, and the required studies for one full year can be completed in this period. This is not a part of the regular work of the Divinity School degree program, and no credit toward a seminary degree can be earned. The faculty includes representatives from the Divinity School and other church-related institutions. The twenty-sixth session of the Course of Study School is from June 24-July 19, 1974.

The J. M. Ormond Center for Research, Planning, and Development

In memory of the late Dr. J. M. Ormond, Professor of Practical Theology of the Duke Divinity School and Director of the Rural Church Program under the Duke Endowment 1923-1948, the North Carolina Annual Conference established the J. M. Ormond Fund in 1951. This fund was a part of the special effort by the North Carolina and the Western North Carolina Conferences of the United Methodist Church to raise extra funds for the Divinity School. The Center is under the Director of Research, Professor Robert L. Wilson, and is jointly supported by the Ormond Fund and the program of the rural church under the Duke Endowment. This Center, structured in cooperation with the two Annual Conferences, has as its purpose assisting the church to perform its ministries. The Center utilizes the methodologies of the social sciences to provide research and planning services for congregations and denominational organizations.

The Henry Harrison Jordan Loan Library

Henry Harrison Jordan, distinguished member of the Western North Carolina Conference (1862-1931), was memorialized by his children in the establishment of an endowment in 1947. The Divinity School librarian is the custodian of books purchased under this fund for loan, through postal services, to qualified ministers of all denominations or localities. The Jordan Loan Library undertakes to maintain a catalogue of up-to-date publications representative of the several theological disciplines and areas of the minister's professional interest. Books may be borrowed by application to the librarian of the Divinity School.

The Duke Divinity School Review

Three times each year (autumn, winter, and spring) the Divinity School publishes a magazine designed to acquaint its readers with current theological thinking through the inclusion of public addresses given at the school, articles by faculty members and others, and book reviews. The Review is circulated free of charge to a mailing list of some 2,600, including alumni of the School, interested friends, campus ministers, teachers, administrators, and librarians. It is also available to students upon request.

Other Programs

Facilities for Advanced Study through the American Schools of Oriental Research. Duke University is one of the supporting members of the American Schools of Oriental Research. Accordingly, students in the Divinity School have the privilege of attending the Albright Institute of Archaeological Research in Jerusalem, the American Center of Oriental Research in Amman, and similar institutions without charge for tuition. They may also compete for the four fellowships offered annually by the Schools, the stipends depending upon available funds.

Programs in Pastoral Psychology. Programs in pastoral psychology beyond the studies incorporated in the M.Div. curriculum are provided in cooperation with the Duke University Medical Center. Four such special programs are available.

1. The Master of Theology degree with a major in pastoral psychology is ordinarily a calendar year program beginning the first full week in June. However, upon the recommendation of the staff, candidates with a quarter or more of clinical pastoral education may begin their program in September. The candidate may plan one of three programs or concentrations: a concentration in pastoral theology relating psychology and theological understanding to professional ministry, especially the parish, through coursework and supervised field or clinical experience; a concentration in pastoral care through coursework and an intern year in Basic Clinical Pastoral Education; a concentration in pastoral counseling through coursework and a year of Advanced Clinical Pastoral Education. In the context of clinical pastoral education various professional goals may be sought including general understanding and skills in pastoral care and specialization in pastoral counseling and clinical supervision. The CPE is certified by the Association for Clinical Pastoral Education. Persons specializing in pastoral counseling will be moved toward certification with the American Association of Pastoral Counselors. A quarter of clinical pastoral education (PP 277A or its equivalent) is considered a prerequisite for all programs. Degree candidates who extend their program over the calendar year receive three certified units of clinical pastoral education and nondegree candidates receive four certified units.

2. Single quarters of basic clinical pastoral education are offered to qualified candidates beginning the middle of January, running concurrently with the second semester in the Divinity School, and also beginning the first Monday in June, running eleven weeks.

3. A one-year certificate or nondegree internship program in CPE is available through the Duke Medical Center for persons who hold the Master of Divinity degree or its equivalent. Also, students who wish to pursue a pregraduation intern year are invited to apply, provided they have completed

at least one year of theological education. The certificate, nondegree intern year can be done at any level of CPE (basic, advanced, supervisory) for which the candidate and the supervisory staff judge him to be ready. These persons may enroll in the Divinity School as special students for a course or two each semester. Such training usually provides four quarters of certified CPE credit.

4. A two-week clinic in pastoral care is provided each summer as part of the Divinity School's continuing education program for persons with the M.Div. or equivalent degree.

For further information concerning any of these programs, write to Dr. Richard A. Goodling, Director, Programs in Pastoral Psychology, Duke Divinity School. See Master of Theology degree program.

Library Memorial Funds

The following memorial funds provide resources to enrich the collections of the Divinity Library.

Ormond Memorial Fund. Established in 1924 by Dr. J. M. Ormond, '02, and Mrs. Ormond, in memory of his mother and father, Mr. and Mrs. J. J. Ormond, the income from the Ormond Memorial Fund is to be used for the purpose of a collection of books on the rural church for the Library of the Divinity School at Duke University.

Avera Bible Fund. Established in 1895 by gift of Mrs. L. B. McCullers in memory of her husband, Willis H. Avera, the fund provides for the purchase of books for the Divinity School Library.

Louis W. Bailey Memorial Fund. This memorial fund was established in 1958 by the Reverend A. Purnell Bailey in memory of his father. The income is to be used for books for the Divinity School Library.

The William Arthur Kale, Jr. Memorial Fund. William Arthur Kale, Jr. was a member of the Duke University Class of 1958, a lover of sacred art and music, and a member of the University Chapel Choir. In his memory, there was established in 1964, by the provision of his parents, Professor and Mrs. William Arthur Kale, Sr., a fund for the purchase of books and other materials in the area of fine arts and religious musicology for the perpetual enrichment of the holdings of the Divinity School Library.

The Walter McGowan and Minnie Daniel Upchurch Fund. Established in 1971 by W. M. Upchurch, Jr., an alumnus of Duke University and a member of its Board of Trustees, the fund, honoring Mr. Upchurch's mother and father, is used for the purchase of materials in the area of sacred music and is supplementary to a collection of materials given by Mr. Upchurch to the Divinity Library. This collection includes 1487 anthems and other compositions of sacred music, along with 62 disc recordings of the Duke University Summer Chapel Choir for the years 1937-1941, at which time Mr. Upchurch was Director of the Choir.



9

Courses of Instruction

Course Enrollment

The required courses of the curriculum are: OT 11, NT 18, CH 13, CH 14, AC 28, CT 32, and CHE 33. Other courses numbered through 199 are elective courses for Divinity Students only. Most courses numbered 200 and above are approved for credit by both the Divinity School and the Graduate School. All of these courses require the permission of the instructor. For other prerequisites the student should consult the roster of "Courses of Instruction" in this *Bulletin* and should also refer to published *Registration Advices* at the time of registration for each semester.

Courses jointly approved by the Divinity School and the Graduate School of Duke University are published in the *Bulletin of the Divinity School*. Only those courses published in this *Bulletin* are approved for fulfillment of requirements for degrees offered by the Divinity School, except those authorized as cognate studies under the curriculum of this school.

Bible

Knowledge of the content of the English Bible is regarded as indispensable for fulfillment of conditions for the basic theological degree. Provision for review of these materials will be integral to the Old and New Testament introductory courses.

Proposed Offerings, 1974-1975

The following courses are tentatively scheduled to be offered during the academic year 1974-75. Consult the following pages for full description.

OT: 11, 106D, 201, 202, 207, 208, 209, 242, 305, 306, 307, 323A, 350, 351.

NT: 18, 103, 104, 114, 117B, 117C, 118, 226D, 226E, 258, 312, 314, 340, 341.

CH: 13, 14, 120, 126, 140, 145, 236, 344.

HT: 143, 204, 246, 260, 308, 317.

AC: 28, 296, 384, 395, 396.

CT: 32, 108, 110, 200, 225, 320, 322, 325, 326.

CC: 229.

CHE: 33, 107, 113, 243, 244, 245, 262, 292, 389, 390, 394.

WC: 24.

CM: 9, 10.

CP: 128, 129, 146, 148, 150, 151, 153, 155A, 159.

CW: 34, 134, 178, 180, 182.

PR: 30, 180, 183, 185, 186, 188, 196, 203.

PP: 70, 170, 174, 176B, 176C, 176D, 177, 178, 271, 273, 277B, 277C, 278, 281A, 281B, 282A, 282B.

FE: 195E.

CED: 105, 205, 206, 218, 221.

BCS: 100, 124, 126, 191.

I. Biblical Studies

OLD TESTAMENT

11. Introduction to Old Testament Interpretation. An introduction to the literature, history, and religion of ancient Israel with emphasis upon exegetical methodology. 4 s.h. *Boiley and Murphy*

101. The Prophetic Movement. A study of the prophetic movement in Israel from the earliest period to the post-exilic development of apocalyptic with special reference to the content and religious teaching of the prophetic writings. 3 s.h. *Efird*

106. Exegesis of the English Old Testament. Prerequisite: OT 11 or equivalent.

106A. *Genesis.* Exegesis of the book of Genesis in English. 3 s.h. *Boiley*

106B. *Amos and Hoseo.* Exegesis of Amos and Hosea in English. 3 s.h. *Bailey*

106D. *Poetry of the Old Testament.* Exegesis of selected poetical passages of the Old Testament in English. 3 s.h. *Murphy*

106E. *Old Testoment Psalms.* Exegesis of various literary types; theological orientation of OT liturgical prayer; implications for prayer and liturgy today. 3 s.h. *Murphy*

109. The Religion of the Old Testament. A study of the religious ideas contained in the Old Testament with special reference to their interpretation from Robertson Smith to the present. 3 s.h. *Efird*

130. Seminar on Death and Dying. Critical consideration of Biblical, legal, medical, and ethical perspectives. Prerequisites: OT 11; NT 18. 2 s.h. *Boiley, H. Smith, and Others*

201. Introduction to Biblical Hebrew. Elements of phonology, morphology, and syntax. Exercises in reading and writing Hebrew. 3 s.h. *Bailey*

202. Introduction to Biblical Hebrew and Hebrew Exegesis. Study of the weak verb; exegetical treatment of the book of Jonah. 3 s.h. (Note: 201-202 are not credited separately.) *Bailey*

207. Second Hebrew. Historical Hebrew grammar with reading and exegesis of Old Testament prose. (Pentateuch and historical books in alternate years.) First semester. 3 s.h. *Wintermute*

208. Second Hebrew. Historical Hebrew grammar and rapid reading of prose and poetry. Second semester. 3 s.h. *Murphy*

209. Old Testament Theology. Studies of the Old Testament in regard to theological themes and content. Prerequisite: OT 11 or equivalent. 3 s.h. *Murphy*

223. Exegesis of the Hebrew Old Testament. Prerequisite: OT 201-202.

223A. *Amos and Hosea.* Interpretation based upon Hebrew exegesis, stress upon hermeneutical method. 3 s.h. *Bailey*

223B. *Job.* Exegesis of the book of *Job* in Hebrew. 3 s.h. *Murphy*

223C. *Exodus.* Exegesis of the book of *Exodus* in Hebrew. 3 s.h. *Bailey*

237. History of the Ancient Near East. Emphasis upon the religions, literature, and art of Mesopotamia. 3 s.h. *Bailey*

242. Life After Death in Semitic Thought. Consideration of the various ideas from the early second millennium through the Intertestamental Period. Exegesis of selected OT passages. Evaluation of recent research. Prerequisite: OT 11 or the equivalent. Knowledge of Hebrew helpful but not required. 3 s.h. *Bailey*

302. Studies in the Intertestamental Literature. Selected documents of the Apocrypha and Pseudepigrapha examined exegetically and theologically in their relation to post-exilic Judaism. Prerequisite: permission of the instructor. 3 s.h. *Staff*

304. Aramaic. A study of the Aramaic portions of the Old Testament and selected passages from later Aramaic texts. 3 s.h. *Murphy*

304A. Targumic Aramaic. A study of selected portions of the Targums of the Old Testament. 3 s.h. *Meyers*

305. Third Hebrew. An interpretative study of late Hebrew prose, with readings from Chronicles, Ecclesiastes, and the Mishnah. 3 s.h. *Davies or Meyers*

306. Language and Literature of the Dead Sea Scrolls. A study in interpretation. Prerequisite: a knowledge of Hebrew. 3 s.h. *Wintermute*

307. Syriac. A study of the script and grammar, with readings from the Syriac New Testament and other early Christian documents. Some knowledge of Hebrew and Aramaic is a prerequisite. 3 s.h. *Charlesworth*

323A. Comparative Semitics. An introduction to the morphology and syntax of classical Arabic and the Semitic languages of Mesopotamia together with a consideration of their relationship to Hebrew. 3 s.h. *Wintermute*

323B. Comparative Semitic II. An introduction to the morphology and syntax of classical Ethiopic and the Semitic languages of Palestine-Syria together with a consideration of their relationship to Hebrew. 3 s.h. *Wintermute*

350, 351. Seminar in Old Testament. Research and discussion on selected problems in the Old Testament and related fields. 3 s.h. Murphy

353. Seminar on Text Criticism. Emphasis upon transmission, versions, apparatus, and method. Prerequisites NT 103-104 and OT 201-202 or the equivalents. 3 s.h. Bailey and Others

373-374. Elementary Akkadian. Study of the elements of Akkadian grammar. Reading of Neo-Assyrian texts shedding light on the Old Testament. Prerequisite: Biblical Hebrew. 6 s.h. Bailey

375-376. Elementary Ugaritic. Study of the elements of Ugaritic. Prerequisite: Biblical Hebrew. 6 s.h. Staff

NEW TESTAMENT

18. Introduction to New Testament Interpretation. An introduction to the literature of the New Testament with special attention to the perspectives and methods of historical-critical investigation and interpretation. 4 s.h. Efrid or M. Smith

103-104. Hellenistic Greek. Designed for beginners to enable them to read the Greek New Testament. 6 s.h. (Two sections.) Efrid

105. Studies in Paul. An investigation of Paul's apostolate based upon the Acts and the Epistles with attention to Paul's theology as reflected in selected passages. 3 s.h. Efrid

114. Jesus in the Gospels. A consideration of the origins, transmission, and literary fixation of the Jesus traditions with special attention to the message of the kingdom, the problem of messianic self-consciousness, and the passion. 3 s.h. M. Smith

116. Exegesis of the English New Testament I. A. Luke-Acts; B. Galatians; C. The Pastoral Epistles; D. I and II Corinthians. (NT 116A, B, C, and D are separate courses offered in different semesters.) 3 s.h. Staff

117. Exegesis of the English New Testament II. A. The Gospel and Epistles of John; B. Romans; C. Revelation; D. Mark. (NT 117A, B, C, and D are separate courses, offered in different semesters.) 3 s.h. Staff

118. The New Testament in Greek. Readings in the Gospels. 3 s.h. Staff

119. The New Testament in Greek. Readings in the Epistles. 3 s.h. Staff

225. Living Issues in New Testament Theology. Critical examination of major problems and issues in New Testament interpretation and theology. Prerequisite: 4 s.h. of NT or the equivalent. 3 s.h. M. Smith

226. Exegesis of the Greek New Testament I. A. Mark and Matthew; B. Romans; D. I and II Corinthians; E. Gospel and Epistles of John. (NT 226A, B, D, and E are separate courses, offered in different semesters.) Prerequisite: NT 103-104. 3 s.h. J. L. Price, M. Smith, or F. W. Young

227. Exegesis of the Greek New Testament II. A. Luke-Acts; B. Galatians; C. The Pastoral Epistles. (NT 227A, B, and C are separate courses, offered in different semesters.) Prerequisite: NT 103-104. 3 s.h. J. L. Price, M. Smith, or F. W. Young

258. Coptic. Introduction to the Sahidic dialect with selected readings from Christian and Gnostic texts. Prerequisite: at least one year of Greek. 3 s.h. Wintermute

311. Pharisaic Judaism in the First Century. A reading course in first-century Pharisaic Judaism. 3 s.h. *Davies*

312. Pauline Theology. Studies in aspects of Paulinism in the light of recent scholarship. 3 s.h. *Davies*

314. Judaism and Christianity in the New Testament. A study of their interaction. 3 s.h. *Davies*

319. The Gospel According to St. Matthew in Recent Research. 3 s.h. *Davies*

340, 341. Seminar in the New Testament. Research and discussion on a selected problem in the Biblical field. 3 s.h. *J. L. Price and M. Smith*

345. The Epistle to the Hebrews in Recent Research. 3 s.h. *Davies*

II. Historical Studies

CHURCH HISTORY

13. History of the Church to the Protestant Reformation. A survey through the fifteenth century in terms of spiritual genius, organizational development, great literature, and representative movements. 3 s.h. *Gregg*

14. History of Modern European Christianity. A survey of the main currents in Reformation and post-Reformation church history. 3 s.h. *Steinmetz and Raitt*

120. The Reformation of the 16th Century. Theological issues in the Protestant Reformation. Prerequisite: CH 14. 3 s.h. *Raitt*

126. The English Reformation. The religious history of England from the accession of Henry VIII to the death of Elizabeth I. Extensive readings in the English reformers from Tyndale to Hooker. 3 s.h. *Steinmetz*

139. Methodism. A study of Methodist societies in England and the developing church in America as they gave rise to such historic issues as polity, education, division, and reunion. Prerequisite: CH 13-14. 3 s.h. *Baker*

140. The Rise of Methodism and the Anglican Background. The Methodist societies within the Church of England to the death of Wesley. Prerequisite: CH 13-14. 3 s.h. *Baker*

(Students are advised that either CH 139 or CH 140 will satisfy the United Methodist Discipline Requirement No. 344.)

141. The Classic Age of the English Hymn. See CW 141.

145. The Later Reformation and the Rise of Protestant Orthodoxy. Problems in Protestant theology before Kant. Extensive readings in the classic dogmatists of the Lutheran and Reformed traditions. 3 s.h. *Raitt*

236. Luther and the Reformation in Germany. The theology of Martin Luther in the context of competing visions of reform. 3 s.h. *Steinmetz*

247. Readings in Latin Theological Literature. Critical translation and study of important theological texts in Latin from various periods of the history of the Church. 3 s.h. Steinmetz

334. Church Reformers and Christian Unity. Theology and ecclesiastical reform in the later middle ages. Extensive readings in Marsilus of Padua, William Ockham, Jean Gerson, Pierre d'Ailly, Nicholas of Cusa, Jan Hus, Gabriel Biel, Wessel Gansfort, and Desiderius Erasmus. 3 s.h. Steinmetz

335. The English Church in the Eighteenth Century. Studies of Christianity in England from the Act of Toleration, 1689, to the death of John Wesley, 1791. 3 s.h. Baker

336. Christian Mysticism in the Middle Ages. Source studies, in historical perspective of such late medieval mystics as Bernard of Clairvaux, the Victorines, Ramon Lull, Meister Eckhart, Richard Rolle, Catherine of Siena, and Nicholas of Cusa. Prerequisite: CH 13. 3 s.h. Staff

339. The Radical Reformation. Protestant movements of dissent in the sixteenth century. Special attention will be devoted to Müntzer, Carlstadt, Hubmaier, Schwenckfeld, Denck, Marpeck Socinus, and Menno Simons. 3 s.h. Steinmetz

344. Zwingli and the Origins of Reformed Theology. Source studies in the early Reformed tradition. 3 s.h. Steinmetz

HISTORICAL THEOLOGY

111. History of Early and Medieval Doctrines. A study of basic Christian doctrine of the early and medieval church, with special emphasis on the doctrines of God, Christ, justification, and the sacraments. 3 s.h. Staff

120. Early and Medieval Theologies of Grace. A study of anthropological theology in the early and medieval church. 3 s.h. Staff

121. Readings in Sacramental Theology. The sacraments in the history of Christian thought. 3 s.h. Raitt

123. Readings in Historical Theology. In-depth studies of representative figures of the early and medieval church, such as Clement of Alexandria, Irenaeus, Cyprian, Boethius, Anselm, Bonaventure, Thomas Aquinas, or others. Prerequisite: CH 13-14. 3 s.h. Staff

125. Introduction to Ecclesiastical Latin. A study of grammar and readings pertinent to the Latin Middle Ages. 3 s.h. Staff

136. Theology of St. Thomas Aquinas. An examination of major theological themes in the *Summa Theologica*. 3 s.h. Staff

141. Women, Religion and Theology. An historical study of fundamental religious perceptions and theological interpretations of woman. 3 s.h. Raitt

143. Death and Resurrection in Early Christian Writings. An approach to theologies of the Patristic age. Selected readings in the sources. 3 s.h. Gregg

204. Origen: On First Principles. Examination of the system of an important Alexandrian theologian and exegete of the third century. 3 s.h. Gregg

241. Problems in Reformation Theology. Prerequisite: permission of the instructor. 3 s.h. Steinmetz

246. Problems in Historical Theology. Prerequisite: permission of the instructor. 3 s.h. *Raitt*

251. The Counter-Reformation and the Development of Catholic Dogma. Issues in Roman Catholic theology from the Reformation to the Second Vatican Council. 3 s.h. *Raitt*

260. Life and Thought of the Wesleys. A seminar on John and Charles Wesley and their colleagues in relation to English culture and religion in the eighteenth century. Prerequisite: permission of the instructor. 3 s.h. *Baker*

261. The Theology of John Wesley. A study of the development and structure of Wesley's theology with special reference to his doctrines of man and salvation. 3 s.h. *Richey*

308. Greek Patristic Texts. Critical translation and study of selected Greek texts illustrative of significant aspects of patristic theology and history from the second through the fifth century A.D. Prerequisite: permission of the instructor. 3 s.h. *F. W. Young*

313. The Apostolic Fathers. A study of the religious thought in the writings of the Apostolic Fathers. 3 s.h. *F. W. Young*

317. Seminar in the Greek Apologists. A study of the apologetic writings of the Greek Fathers in relation to the challenges of their contemporary world. Special attention will be given to leading protagonists of late Graeco-Roman culture, such as Celsus, Porphyry, Julian, et al. 3 s.h. *F. W. Young*

318. Seminar in the Greek Fathers. A study of selected topics from the Greek Fathers. 3 s.h. *F. W. Young*

338. Calvin and the Reformation in Switzerland. The theological development of John Calvin. A comprehensive examination of his mature position with constant reference to the theology of the other reformers. 3 s.h. *Raitt*

AMERICAN CHRISTIANITY

28. History of American Christianity. A consideration of the nature of Christianity in America and the history of its development. 3 s.h. *Henry*

199. The American Social Gospel. A study of Protestant social thought and action in America since 1865. 3 s.h. *Henry*

296. Religion on the American Frontier. A study of the spread of evangelical Christianity as a theological and cultural phenomenon of the American West. 3 s.h. *Henry*

377. Contemporary American Theater and Evolving Theological Forms. An examination of creed and ritual implicit and explicit in contemporary American theater, of stage, film, and television. 3 s.h. *Henry*

384. Religious Dissent in American Culture. History and significance of dissent in the theology and culture of America. 3 s.h. *Henry*

385. Religion in American Literature. A critical study of the meaning and value of religious motifs reflected in American literature. 3 s.h. *Henry*

395. Christian Thought in Colonial America. Exposition of the main currents in Protestant theology. 3 s.h. *Henry*

396. Liberal Traditions in American Theology. A study of the main types of modern religious thought, beginning with the theology of the Enlightenment. 3 s.h. *Henry*

397. Contemporary American Theology. A critical appraisal of major tendencies. 3 s.h. *Henry*

HISTORY OF RELIGIONS

158. Contemporary Non-Christian Religions. Critical consideration of contemporary conditions in major non-Christian traditions, with special reference to Hinduism, Buddhism, Islam, and African Religions. 3 s.h.

180. Religions of the Near East. Historical and theological introduction to the major indigenous traditions of the Near East, especially Zoroastrianism and Islam. 3 s.h. *Partin*

280. The History of Religions. A study of the methodology of the history of religions, the nature of religious experience and specific categories of religious phenomena. Prerequisite: permission of the instructor. 3 s.h. *Partin*

III. Theological Studies

CHRISTIAN THEOLOGY

32. Christian Theology. The major themes of the theology of the church. 4 s.h. *Cushman, Herzog, and Langford*

100. Introduction to Black Theology. A critical analysis of the recent rise of black consciousness in America and its significance in the theological preparation of the Christian ministry. (See Black Church Studies 100.) 3 s.h. *Staff*

108. Major Types of Protestant Theology. A survey of Protestant theology from the Reformers to Karl Barth. (For juniors only.) 3 s.h. *Cushman, Herzog, or Langford*

110. This Life and the Age to Come. Christian eschatology and the meaning of history in the light of God's triumph over sin, suffering, and death. 3 s.h. *Robinson*

200. The Person and Work of Christ. The problem of knowledge of Christ and formulation of a doctrine of his work and person in the light of Biblical eschatology. Prerequisite: CT 32. 3 s.h. *Cushman*

210. Contemporary British Theology. Selected problems in representative British theological writings after 1900. 3 s.h. *Langford*

211. Authority in Theology. The idea and function of authority in theology. 3 s.h. *Langford*

212. The Doctrine of the Holy Spirit. A study of the person and work of the Holy Spirit. 3 s.h. *Langford*

214. The Christian Doctrine of Salvation. Systematic exposition and restatement of the historic faith of the Church in relation to representative secular alternatives of ancient and modern times. Prerequisite: CT 32 or equivalent. 3 s.h. *Cushman*

215. The Nature and Mission of the Church. Christian understandings of the church, Biblical, historical, contemporary, with a view toward ecumenical doctrinal construction. 3 s.h. *Herzog*

216. Kierkegaard Studies. Critical examination of selected works. 3 s.h. *Robinson*

217. Theological Explorations. A seminar on contemporary theological issues, content to be designated by the Theological Division. 3 s.h. *Staff*

224. Conceptions of Man in Western Thought. An analysis and interpretation of important types of philosophical and theological theory. 3 s.h. *Richey*

225. The Christian Understanding of Man. Representative historical and recent theological interpretations of man's nature, predicament, deliverance, and possibility. 3 s.h. *Richey*

226. Theology and Contemporary Secular Understandings of Man. Critical theological examination of selected current interpretations of human nature and the human situation. 3 s.h. *Richey*

300. Systematic Theology. Method and structure of systematic theology, the doctrine of God, theological anthropology, and Christology. Prerequisite: CT 32 or equivalent. 3 s.h. *Cushman, Herzog, and Langford*

303. The New Hermeneutic and the Idea of History. A critical examination of key thinkers in present-day European systematic theology (Fuchs, Ebeling, Moltmann, Ott, and Pannenberg) in the light of Ernest Bloch's philosophy. Prerequisite: CT 32. 3 s.h. *Cushman and Herzog*

320. Hegel and Schleiermacher. A study of two founders of modern Protestant thought. 3 s.h. *Herzog*

322. Nineteenth Century European Theology. Protestant theology from Kant to Herrmann. 3 s.h. *Herzog*

325. Philosophical Theology. Theology, as the knowledge of God, considered in dialogue with selected pagan and Christian philosophers from Plato to Kant. Prerequisite: CT 32 or equivalent. 3 s.h. *Cushman*

326. Philosophical Theology II. Main problems of philosophical theology in the modern period. Prerequisite: CT 325 or permission of instructor. 3 s.h. *Cushman*

328. Twentieth Century European Theology. Critical examination of the thought of selected Protestant theologians from 1900 to 1950. Prerequisite: CT 32. 3 s.h. *Cushman and Herzog*

352. Seminar in Christian Theology. Research and discussion of a selected problem in the systematic field. 3 s.h. *Staff*

372. Theology of Paul Tillich. An examination of Tillich's philosophical theology. 3 s.h. *Robinson*

CHRISTIANITY AND CULTURE

101. Types of Religious Philosophy. Basic historical orientation of religious thought, especially in Western culture. 3 s.h. *Robinson*

102. Science and Biblical Theism. Presuppositions, method, and content of scientific knowledge in physics and biology in relation to creation and providence. 3 s.h. *Robinson*

229. Tragedy and Christian Faith. An analytical and constructive philosophical interpretation of the fundamental tragic dimensions of human life in the light of a Christian theological understanding. 3 s.h. *Robinson*

CHRISTIAN ETHICS

All courses in Christian Ethics numbered 200 or above require a prerequisite of CHE 33 or permission of the instructor; 300-level courses require permission of the instructor.

33. Christian Ethics. Theological assumptions, ethical principles, and their application to contemporary issues of Christian social policy. 3 s.h. *Beach, Lacy, and H. Smith*

107. The Biblical Bases of Christian Ethics. Examination of major themes and moral teachings principally in the Decalogue, the Gospels, and the Epistles, with application to some contemporary issues. Prerequisite: OT 11, NT 18, or equivalent. 3 s.h. *H. Smith*

113. Contemporary Issues in Christian Morals. Constructive examination of selected areas of public and private morality. 3 s.h. *Beach or H. Smith*

115. Christian Social Action in the Local Church. Christian ethical principles, resources, procedures, and programs for pastoral leadership in parish social action. 2 s.h. *H. Smith*

122. Moral Theology in the Nineteenth Century. Critical and comparative examination of ethical theory as exhibited in the work of representative theologians. 3 s.h. *H. Smith*

130. Seminar on Death and Dying. Critical consideration of Biblical, legal, medical, and ethical perspectives. (Also listed as Biblical Studies 130.) Prerequisites: OT 11, NT 18. 2 s.h. *H. Smith, Bailey, and Others*

194. The Protestant Church and American Culture. Analysis from the perspective of Christian ethics of current problems in the interpenetration of Church and culture with explicit reference to the parish setting. 3 s.h. *H. Smith*

243-244. Interdisciplinary Seminar in Medical-Legal-Ethical Issues. A seminar composed of students and faculty from the Medical, Law, and Divinity Schools for critical consideration of selected pertinent issues of mutual professional interest. 3 s.h. *H. Smith and Others*

245. Ethics in World Religions. Moral foundations, assumption and applications in such historic faiths as Hinduism, Buddhism, Confucianism, and Islam, in the light of Christian ethical perspectives. 3 s.h. *Lacy*

262. Marxist Ideology and Christian Faith. Comparative examination of Communist and Christian doctrines such as man, society, sin, history and eschatology together with an introduction to the contemporary dialogue. 3 s.h. *Lacy*

292. Christian Ethics and International Relations. An examination of Christian attitudes toward such issues as war and peace, the rule of law, foreign aid, and human rights; and the Church's contribution to international policies and institutions. 3 s.h. *Lacy*

383. Moral Theology in the Twentieth Century. Critical and comparative examination of ethical theory as exhibited in the work of selected contemporary theologians. 3 s.h. *H. Smith*

388. Ethics and Medicine. A critical study of selected aspects of modern biomedical technology with special reference to the ethical assumptions informing their development and practice. 3 s.h. *H. Smith*

389. Christian Ethics and Contemporary Culture. A study of the interaction between Christian thought and current secular social theory. Prerequisite: permission of the instructor. 3 s.h. *Beach*

390. Current Problems in Christian Ethical Theory. A critical study of dominant issues in Christian ethics: such as community, conscience, contextualism, power, and technology. 3 s.h. *Beach*

391. Historical Types of Christian Ethics I. A critical study of representative statements of Christian ethical theory through the early Reformation. 3 s.h. *Beach*

392. Historical Types of Christian Ethics II. A continuation of CHE 391, from the Reformation through current Christian ethical theory. 3 s.h. *Beach*

394. Christianity and the State. The relation of the Christian theory of the State to political problems with special consideration of the religious assumptions underlying democratic theory and practice, and of the relationship of the Church to the State. 3 s.h. *Beach*

World Christianity and Ecumenics

24. The Christian World Mission. A study of theological foundations, guiding principles, and contemporary problems of the world Christian community. 3 s.h. *Lacy*

133. The Expansion of Christianity. A survey of the spread of Christianity and the growth of the church with special emphasis on nineteenth and twentieth century Protestantism in the non-Western World. 3 s.h. *Lacy*

135. Area Studies of the Christian Church. The cultural setting and current programs and policies of the Church in one of the following areas: (a) Latin America, (b) India and Pakistan, (c) Africa, (d) Southeast Asia, (e) Japan-Korea-Philippines, (f) Moslem Lands, or (g) United States Home Missions. (One of these areas may be taken as an independent reading course, WC 399, when not offered as a seminar.) 3 s.h. *Lacy and Others*

156. The Ecumenical Movement. Its contemporary development, structures, activities, and problems, against the background of Church unity and disunity. 3 s.h. *Lacy*

386. Seminar: Christianity in Dialogue with Other Faiths. Contemporary currents of Christian thought as they relate to resurgent non-Christian religions and involve new formulations of a theology of mission. 3 s.h. *Lacy*

IV. Ministerial Studies

THE CARE OF THE PARISH

9. Church and Ministry I. Contemporary views of the nature and normative function of the Church in modern society and some implied conceptions

of the ministry. (Course offered in three sections.) 2 s.h. *Beach, Cousin, and Langford*

10. Church and Ministry II. Exposure to and reflection upon various contexts of present-day Christian ministry with a view to integration of contexts with the work of the Church, its nature, and appropriate styles of ministry. 3 s.h. *Goodling or Mickey*

128. An Organization Development Approach to Church Administration. A study of the pastor's role as participant-facilitator with attention to organizational theory and facilitative skills employing the group workshop method of learning. 3 s.h. *Ingram*

129. The Pastor as Consultant to Church Organization. A consideration of the pastor's role as organizational consultant with special emphasis on data gathering, diagnosis and intervention using experiential learning designs. 3 s.h. *Ingram*

146. Church Building. The role of the pastor in planning and executing building programs in the local church: architectural consideration and counsel, building requirements and plans. 2 s.h. *Nesbitt*

148. Christian Stewardship and Church Finance. A seminar to consider the principles of stewardship education, budget-making, enlistment in church support. 2 s.h. *Ingram*

150. Church and Community. The structure and dynamic factors shaping the present-day community together with their import for the work of the Church. 2 s.h. *Wilson*

151. The Town and Country Church. The small church, the circuit church, circuit administration, larger parish and group ministry, and the Town and Country movement. 2 s.h. *Nesbitt*

152. Evangelism and the Local Church. A study of the nature, purposes, and methods of contemporary Christian evangelism with special attention to the local church. 3 s.h. *Ingram*

153. Comparative Polity and Ecumenics. A study of selected examples of church polity as represented in the Catholic and Protestant traditions in relation to present-day developments. 3 s.h. *Ingram*

154. The Urban Church. The function, nature, program, and administration of the effective city church and of the urban minister's distinctive task. 2 s.h. *Wilson*

155. A, B, C, D. Church Polity.

A. *The United Methodist Church.* A study of the history of Methodist government and contemporary polity. 3 s.h. *Ingram*

B. *The Baptist Churches.* 2 s.h.

C. *The United Church of Christ.* 2 s.h.

D. *The Presbyterian Churches.* 2 s.h.

157. The Church and Social Change. A sociological study of the relationship of the church to the process of social change, including the role of the church as innovator, the church as participant in social movements, method(s) of accomplishing change, and the religious leader as an agent of social change. 3 s.h. *Wilson*

159. The Church and Extremism. A study of extremist groups, including their ideology, activities, and methods of operation. Particular attention will be given to ways by which the congregation and clergyman can deal with such organizations in the local community. 2 s.h. *Wilson*

179. A, B. Seminar on Church Research. Methods of research and survey for the gathering, analysis, and interpretation of church and community data, together with preparation and use of denominational statistics. 3 s.h. *Wilson*

189. The Multiple Staff Ministry. Group work, leadership, and organizational theories as applied to staff ministries in large church and cooperative parish settings. 3 s.h. *Ingram*

220. Seminar in Contemporary Ministries. A seminar in patterns and issues of contemporary ministries, content to be designated by the Ministerial Division. 3 s.h. *Staff*

CHRISTIAN EDUCATION

101. Faith and Nurture. Foundations in theology and educational theory for the teaching ministry of the Christian community. 3 s.h. *Richey*

102. New Forms of Education in the Church. An introductory course in religious education aimed at providing a basis for planning an alternative future for education in the church. Especially designed for those preparing for the parish ministry. 3 s.h. *Westerhoff*

105. The Church as a Learning Community. A basic introductory course on the nature of religious communities and the means by which they evolve, sustain, and transmit faith, values and life-styles—with implications for planning and designing intentional learning experiences within the total life of Christian faith communities. (Open to area clergy and laity.) 3 s.h. *Westerhoff*

167. Theology and the Laity. A study of contemporary lay movements and centers, the ministry and mission of the laity in Church and world, and the ministry of teaching in the lay renewal of the Church. 3 s.h. *Richey*

168. Confluent Education and Value Clarification. A workshop course to introduce and critically examine two forms of humanistic education and evaluate their viability for use in the church with children, youth, and adults. Also aimed at the personal growth and development of participants. 3 s.h. *Westerhoff*

169. Major Issues in Christian Education. Critical examination of selected issues in Christian Education. 3 s.h. *Richey*

205. Colloquium in Religious Education. A workshop focusing on current trends in education and theology and their implications for education in the church. 3 s.h. *Westerhoff*

206. The Teaching of Religion. A workshop in theory and practice for those planning to teach religion in secondary schools or colleges and universities. 3 s.h. *Westerhoff*

214. Religion and Higher Education. A seminar for those preparing for campus ministries and the teaching of religion in colleges and universities

on selected topics related to religion in higher education. 3 s.h. Prerequisite: permission of the instructor. *Westerhoff*

218. Research Seminar in Religion and Education. Various research techniques applied to issues in religion and education. 3 s.h. Prerequisite: permission of the instructor. *Westerhoff*

221. Learning, Teaching, and Curriculum. Theoretical, laboratory and field experience in planning, designing, and facilitating educational experience with children, youth, adults, families, and intergenerational groupings. 3 s.h. *Westerhoff*

222. Issues in Theology and Christian Education. A seminar in selected theological issues such as the doctrine of man or revelation and their implications for education. 3 s.h. Prerequisite: permission of the instructor. 3 s.h. *Richey*

The following are graduate courses in the University Department of Education which are especially recommended for cognate work.

206. Studies in the History of Educational Philosophy

217. Psychological Principles of Education

221. Program in Early Childhood Education

222. New Developments in Educational Curriculum

249. Exceptional Children

260. Introduction to Educational Research

343. History of Higher Education

BLACK CHURCH STUDIES

100. Introduction to Black Theology. An examination of the historical roots of Black theology with special attention to the treatments of traditional themes and problems in theology by Black theologians and their rationale for the Black theological enterprise. (Previously listed as CT 100.) 3 s.h. *Edwards*

124. The Black Church in America. A consideration of the historical and theological development of the separate Black Christian denominations in America with attention to some of the major leaders, Black worship, and Black preaching. 3 s.h. *Edwards*

126. Black Religion and Social Conflicts in America. An examination of some of the reactions of Black religious groups to the limits placed upon Black people in American life, efforts made to break down racial barriers in society, and attempts to institutionalize Black responses to such barriers. 3 s.h. *Edwards*

191. The Church and Power. The relationship of the institutional Church to other groups in the community which exercise power. 3 s.h. *Edwards*

PASTORAL PSYCHOLOGY

70. Group Process and Personal Identity. A small group experience to enhance personal growth and explore personal identity and interpersonal styles of relating. 2 s.h. *Staff*

170. Pastoral Conversation. A consideration of the nature of the pastor's conversation with people in his total caring ministry grounded in the person-

centered understanding of personality processes and human relationships, using textual and conversational materials. 3 s.h. Goodling

171. Pastoral Counseling. Consideration of the structures and processes of pastoral counseling; pastoral evaluation, referral, intake, contract, goals, transference, termination, and other special problems. Prerequisite: permission of instructor. 3 s.h. Goodling

172. Pastoral Care in Marriage and Family Life. Pastoral care in marriage and family life with special emphasis on premarital guidance within the context of the local church's program of family life education. 3 s.h. Goodling

173. Psychotherapy and Sanctification. An analysis of structuring and growth processes in psychotherapy in the light of a Christian understanding of sanctification. 3 s.h. Mickey

174. Religion and Personality Processes. Psychological and religious interpretation of man's basic experiences; personality factors in religious development; psycho-dynamic meanings and uses of religious beliefs and practices. 3 s.h. Goodling or Mickey

175. Special Practicum Projects. For advanced students who want additional clinical experience under supervision in a pastoral care setting (inner-city; alcoholic rehabilitation; counseling; etc.). Staff

***176. A, B, C, D. Pastoral Care and Persons in Institutions.**

A. Lectures by staff and ward visits at the Dorothea Dix State Hospital in Raleigh (and related facilities: Alcoholic Rehabilitation). 3 s.h. Staff

B. Lectures by staff and ward visits at the Murdoch Center for the Mentally Retarded and other facilities in the Butner, North Carolina, complex (State Hospital, Alcoholic Rehabilitation, Training School). 3 s.h. Staff

C. Lectures by staff and ward visits at the Central Prison in Raleigh and related correctional facilities. 3 s.h. Staff

D. The Church's ministry to the elderly and homebound explored through lectures, case conferences, and visits to the elderly and homebound parishioners of local Durham churches. 3 s.h. Goodling

***177. Pastoral Care in the General Hospital Setting.** An examination, through intensive individual and group supervision, of the student's pastoral ministry to the ill, the dying, and the bereaved in the general hospital setting. Prerequisite: PP 170. 3 s.h. Staff

178. Power and Restraint in the Parish. An analysis of psychopolitical dynamics of the local church. Verbatim materials from the student's church work will be utilized in the course. 3 s.h. Mickey

271. Marriage and Family. The psychodynamics of marital conflict and family problems; principles and procedures in marriage and family counseling. (For seniors and Th.M. candidates.) 3 s.h. Detwiler

273. Problems of Methodology in Pastoral Theology. An investigation of problems in relating materials from theology and personality disciplines as they are found in pastoral theology, with a view toward the development

*The Pastoral Psychology Staff suggests that a student elect no more than one of the institutional courses (176A, B, C, D, or 177). Students interested in institutional training beyond one such course are encouraged to apply for a CPE quarter.

of a consistent methodology. (A research seminar: open to Seniors and Th.M. students, by permission of instructor.) 3 s.h. Mickey

274. Research Problems in Pastoral Psychology. Research methods and areas of investigation in pastoral psychology. 2 s.h. Goodling

275. Individual Study in Pastoral Psychology. Selected readings in major issues in pastoral psychology issuing in a research or honors paper. 2 s.h. Staff

277. A, B, C. Clinical Pastoral Education. CPE in accredited training centers.

A. Summer quarter of CPE. 4 s.h.

B. Fall semester of CPE. 4 s.h.

C. Spring semester of CPE. 4 s.h.

278. Psychological Theories of Personality. A systematic presentation of leading personality theories, with reference to developmental processes (motivation, cognition, learning, etc.) and their implications for Christian ministry. 3 s.h. Mickey

279. The Caring Ministry of the Laity Through Personal Groups. Personal experience in a group counseling process to develop a methodology for training lay leadership in the ministry of pastoral care through group experience. 2 s.h. Goodling

281. A, B. Pastoral Counseling Practicum. Individual and group supervision of several types of pastoral counseling with people in different crisis and growth situations. The student will be working part time as a minister of counseling in a local church situation. Prerequisite: permission of the instructor. 8 s.h. Staff

282. A, B. Pastoral Psychology Literature Seminar. Critical and constructive reviews of pertinent literature in the field for Th.M. students only. A full-year course. 2 s.h. Goodling or Mickey

PREACHING

30. Theory and Practice of Preaching. The development of a theory of preaching and methods of sermon construction, including clinical experience in preaching sessions and local church settings. 3 s.h. Staff

180. From Text to Sermon. Preaching from Biblical sources. Emphasis upon the goal and methodology of exegesis, the hermeneutic problem, and verbal communication in the present. Prerequisite: OT 11 (NT 18) or the equivalent. 3 s.h. Staff

181. Advanced Sermon Analysis Seminar. A critical study, on the basis of selected sermons and student presentations, of principal and practical problems facing the contemporary preacher. 3 s.h. Carlton

183. Preaching in Context. An analysis of preaching done in the context of the black religious experience based on audio-video-taped sermons and observations done by students. 2 s.h. Cousin

185. Preaching Values in Non-Biblical Sources. A critical examination of select samples of contemporary drama, poetry, and fiction, for homiletical purposes. 3 s.h. Staff

186. Twentieth Century Preaching. A study of contemporary preaching based on printed, recorded, audio- and video-taped sermons of leading homiletics of our age. 3 s.h. *Staff*

187. Pre-Reformation Preaching. Sermons, handbooks, and other historical sources studied in relation to Biblical preaching and the liturgical church, the problem of popular ministry and the issues of Christian reform. Prerequisite: CH 13. 3 s.h. *Staff*

188. Post-Reformation Preaching. A study of the theological trends and significant personalities in the preaching tradition from the sixteenth century to the present. 3 s.h. *Carlton*

193. Theology and Preaching. An examination of the relation of systematic theology and homiletical presentation. 3 s.h. *Staff*

196. Pastoral Preaching. A field related course designed to help students presently serving as student pastors develop their vision of, commitment to, and skills for the week-by-week ministry of preaching in the parish setting. 3 s.h. *Staff*

203. Dialogical Preaching. An examination of the relationship of preacher and congregation in the preaching event for seniors. 2 s.h. *Marney*

WORSHIP AND CHURCH MUSIC

34. Workshop in Communication. Intensive drill in voice, diction, speaking, and reading. Enrollment by recommendation by teaching faculty. 1 s.h. *Rudin*

134. Liturgical Reading. Practice in reading the liturgical materials of the pastoral ministry: Scriptures, prayers, and the rites and services in the Methodist Book of Worship. 2 s.h. *Rudin*

141. The Classic Age of the English Hymn. Eighteenth century development of the English hymn with special reference to Watts and the Wesleys, their precursors and successors. 2 s.h. *Baker*

167. The Sacramental Celebrations. Study of the sacraments in the context of the Gospel Year and the rites of passage celebrating birth, adolescence, maturity, and death. Practice in leadership, using the resources of the Communication Center. 3 s.h. *Rudin*

178. Corporate Worship. Study of the liturgical life of the church celebrated in sacraments, worship, and the church year. Field experiences and vocational application of theory. 3 s.h. *Rudin*

180. Church Music. A two-fold study including: (1) a survey of the great monuments of church music; (2) musicianship, songleading, and basic conducting with an emphasis upon the selection and use of hymns and other music from the *Methodist Hymnal* in public worship. 3 s.h. *Hanks*

182. Chapel Choir. Students who successfully complete CW 180 before graduation may qualify for credit of one-half s.h. for each semester of effective participation in the Chapel Choir up to a limit of 2 s.h. Choir membership, granted by audition, affords opportunity for study of the history and background of church music and practical consideration of it in the context of public worship. *Hanks*

184. New Forms of Worship. Workshop in corporate worship as central in the liturgical life of the Church, and of both traditional and innovative means of communication, celebration, and witness, through shared experiences in multimedia center, field visits, and mini-workshops with resource persons in the various media. 3 s.h. *Rudin and Others*

Field Education Projects, Clinical Training, and Internships

FIELD EDUCATION PROJECTS

Each project involves the quality of preparation and participation commensurate with one semester hour of academic credit. Participation in any project must have the approval of the supervising professor and the Field Education Office before work is begun. Registration for projects must be at the time of regular Divinity School registration, though work on the project may extend over varying lengths of time. A student may receive credit for a maximum of three projects during his seminary career. Projects in other areas may be proposed by professors or students for consideration by the Field Education Committee.

195. A, B, C, D, E, F, G. Field Education Projects.

A. *Pastoral Psychology Practicum.* Small group seminar to explore personal and professional identity and role performance based on written reports of field encounters. Enrollment limited to students currently engaged in field work situations with separate seminars for student pastors and student assistants. 1 s.h. *Staff*

B. *Community Studies.* Planning and execution of a community religious census, church and community survey, or field research study in consultation with the faculty supervisor. Includes background reading, planning sessions, use of volunteer help where needed, tabulation, interpretation, and overall evaluation. 1 s.h. *Staff*

C. *Leadership Training.* Preparation, teaching, and evaluation of a leadership training course under faculty supervision in collaboration with denominational boards of education. Can be taught in any field location approved by faculty supervisor. 1 s.h. *Staff*

D. *Christian Education.* Supervised experience in various areas of educational leadership in the local church. 1 s.h. *Westerhoff and Staff.*

E. *Research in Experimental Ministries.* Assembling data and preparing papers for the use of groups engaged in specialized urban ministries. 1 s.h. *Ingram and Staff*

F. *Community Center Practicum.* Seminar to assist students to integrate work and learning experiences in a community center and to develop a vocational style which displays special relevance for ministry in an inner-city neighborhood. Enrollment limited to those currently engaged in community center experiences. 1 s.h. *H. Smith and Staff*

G. *Worship and Preaching Practicum.* Designed to assist student pastors in the week-by-week work of sermon preparation and presentation. 1 s.h. *Bergland*

CLINICAL TRAINING IN PASTORAL PSYCHOLOGY

Students may earn up to four credits for a quarter or unit of Clinical Pastoral Education (six credits for an Internship year) in programs accredited by the Association for Clinical Pastoral Education (ACPE).

Students involved in clinical training under the direct supervision of members of the Pastoral Psychology staff during the academic year should register for credit under PP 277 for four semester hours of credit. Students should apply for such training through the Director of Programs in Pastoral Psychology.

Students involved in clinical training in summer CPE quarters should register with ACPE and the Director of Programs in Pastoral Psychology as soon as accepted for training by a chaplain supervisor. Upon the receipt of a supervisor's report at the end of the training period the student will receive four hours of transfer credit.

INTERNSHIPS

Students may qualify for an internship when they have satisfactorily completed two full years of the Master of Divinity curriculum and are registered as a student in good standing in the Divinity School. In consultation with the Director of Field Education and a faculty adviser, an individually designed internship may be developed in a particular ministry vocational area of interest. Six semester hours will be given for an approved internship. Prior plans must be developed with the Director of Field Education and properly registered in the registrar's office before credit can be applied.

125-126. Special Ministry Internship. When a student needs to develop professional competencies in a highly specialized form of ministry, the Director of Field Education will assist in designing an appropriate learning contract and in negotiating for a suitable placement setting, provided the arrangements meet the basic criteria approved by the Field Education Committee.

131-132. Ministry Through Social Aging Internship. A twelve-month placement in a regular personnel position in a social service agency to meet the job description of the agency and to develop a personal mode and style of ministry in a secular setting through understanding, appreciation, involvement in and critical theological reflection upon environment, structures, values and decision-making processes as conveyed by the conduct of the agency.

137-138. Parish Ministry Internship. A twelve-month placement, individually designed to engage the student in specified learnings in a wide variety of ministry functions in a local parish, under qualified supervision and using the guidelines of a learning contract.

143-144. Campus Ministry Internship. A nine to twelve-month placement in approved locations designed to provide special learnings in delivering a ministry to college students under qualified guidance and utilizing a learning contract which specifies seminars, a personnel journal, directed readings, and consultations to develop competency in these functions.

175-176. Clinical Pastoral Education. A twelve-month placement in a clinical program accredited by the Association for Clinical Pastoral Education (ACPE).

197-198. Mission Internships. A special internship to prepare for service in Church Missions may be arranged by enlisting in the National or Overseas program of the United Methodist Board of Global Ministries for one to three years. As a requirement for agency planning, applications should be initiated in the fall of the Middler year. Other denominational and/or work-study experiences abroad may be given Field Education credit by special arrangement with the Director of Field Education.

Other types of internship settings may be negotiated in consultation with and by approval of the Director of Field Education.

Department of Religion—Graduate Courses

The following courses are offered periodically in the Graduate Department of Religion by Department of Religion faculty and may be taken by Divinity students with permission of the instructor.

- 217. Islam in India
- 218. Religion in Japan
- 228. The Theology of the Gospel and Epistles of John
- 230. The Meaning of Religious Language
- 231. Seminar in Christianity and Contemporary Thought
- 232. Religion and Literature: Perspectives and Methods
- 233. Modern Narrative and Religious Language
- 244. The Archaeology of Palestine in Hellenistic-Roman Times
- 248. The Theology of Karl Barth
- 249. The Church in Contemporary Theology
- 280. The History of Religions
- 281. Phenomenology and Religion
- 282. Myth and Ritual
- 283. Religions of East Asia
- 284. The Religion and History of Islam
- 285. The Vedic Tradition
- 287. The Scriptures of Asia
- 288. Buddhist Thought and Practice
- 289. World Religions and Social Change
- 293. Sociological Analysis of Religion
- 294. Institutional Analysis of Religious Bodies
- 295. Ethics and Economic Life
- 361. Language and Biblical Criticism
- 380. Existentialist Thought

Appendix

ENROLLMENT SUMMARY

Spring Semester, 1974

Divinity School Students, 281 (249 M.Div., 7 M.R.E., 8 Th.M., 17 Specials);
 Graduate Division of Religion students, 46 (6 M.A., 40 Ph.D.); Total 327.

DENOMINATIONS REPRESENTED 1973-1974*

United Methodist	182	Presbyterian	2
Southern Baptist	15	Pentecostal Holiness	2
Baptist	9	United Presbyterian	2
United Church of Christ	9	American Baptist	1
Episcopal	8	Assemblies of God	1
Presbyterian Church, U.S.	8	Christian Science	1
Disciples of Christ	5	Korean Methodist	1
Lutheran	4	Church of Jesus Christ ¹	
Roman Catholic	4	Latter-Day Saints	1
Christian Methodist Episcopal	3	Methodist, Australia	1
Moravian	3	Methodist, South Africa	1
African Methodist Episcopal Zion	2	Pentecostal Assemblies of the World	1
Church of Christ	2	Society of Friends	1
Congregational	2	Syrian Orthodox	1

GEOGRAPHICAL DISTRIBUTION 1973-1974*

North Carolina	112	Kansas	3
Virginia	26	Missouri	3
Florida	13	Wisconsin	3
South Carolina	11	Connecticut	2
Alabama	10	Illinois	2
Pennsylvania	10	Iowa	2
Kentucky	6	Mississippi	2
Ohio	6	New Jersey	2
Texas	6	Vermont	2
West Virginia	6	California	1
Washington, D.C.	5	Maine	1
Georgia	5	Michigan	1
Louisiana	5	Oklahoma	1
Arkansas	4	South Dakota	1
Maryland	4	Utah	1
Massachusetts	4	Foreign: Africa	2
Minnesota	4	Australia	1
New York	4	India	1
Tennessee	4	Japan	1
Indiana	3	Korea	1

DEGREES CONFERRED AT COMMENCEMENT, 1973

Master of Divinity

M. Winston Baldwin, Jr.	Arthur Monroe Lucas
Richard Thomas Blackwell	Harvey Manchester, Jr.
Charles Lane Boyd	Talmadge Thomas Markham, Jr.
Joseph William Brookshire	John Trenton Martin, Jr.
Jerry Brunson	James d'Alvigny McCullough, II
Arnold Douglas Corriher	Robert Neil McDavid

* The statistics do not include students of the Graduate Division of Religion.

Norwood Rex Crawford
 William Curtis Currie
 John H. Draeger
 Hugh Lawrence Dukes, Jr.
 Earl George Dulaney
 William Alfred Eason
 Gilmer Davis Fauber, Jr.
 Kemp Downs Gregory
 William M. Haas, Jr.
 Charles Lee Helton
 Dan Lee Hendricks
 Linda Carole Holder
 Preston Carston Jones, Sr.
 Jack Robinson Kallmyer
 Philip Wayne Keel
 Richard Briggs Keyworth
 Edward Lee Lewis
 Peter G. Link
 John W. Lipphardt, Jr.
 John Wesley Lockman
 William Frank Louden

G. Melton Mobley, Jr.
 Victor Morgan Moss, Jr.
 Walter Read Patten
 Randall Krieg Perry
 John Brandon Peters
 George William Ramsey III
 Donald Hayse Roberts
 John William Ruth
 Kennard Craig Smith
 David Wesley Swink
 Key Wesley Taylor
 William Vinston Taylor
 James Wilson Trent, Jr.
 Charles McNeill Turner, Jr.
 Robert Fredrick Vagt
 David William Venter
 Steven Miles Watts
 Henry Bryant Wilbourne
 Phillip Eldridge Williams
 Earl Wilson, Jr.
 John Tyson Wright

Master of Theology

William Keith Bowie
 Julie Bethel Forringer
 John Harvey Halbrook
 John L. Hall

John Martin Mann
 Seymour Moskowitz
 Michael Dan Potts
 James Arthur Tingle

Master of Religious Education

Ina Mason Carpenter
 Beth Cronister Downs

Sister Miriam Walsh, M.H.S.H.

INSTITUTIONS REPRESENTED

Adrian College	1	Duke University	27
Albany Medical College	1	East Carolina University	3
Albright College	3	Eastern Michigan University	1
Appalachian State University	1	East Tennessee State University	1
Ashland College	1	Elon College	3
Atlantic Christian College	2	Emmanuel College	1
Athens College	1	Emory University	1
Auburn University	1	Federal City College	1
Averett College	2	Florida Presbyterian College	1
Baylor University	3	Florida Southern College	2
Bennett College	1	Florida State University	1
Birmingham Southern College	1	Franklin & Marshall College	1
Bluefield State College	1	Furman University	6
Boston University	1	Georgetown College	1
Brigham Young University	1	Georgia Institute of Technology	1
Butler University	1	Gettysburg College	1
Campbell College	3	Greensboro College	3
Carson-Newman College	1	Guilford College	2
Catawba College	1	Hamline University	4
Colgate-Rochester Divinity School	1	Hanover College	1
College of William & Mary	5	Hendrix College	1
College of Wooster	1	High Point College	6
Colorado College	1	Hiram College	2
Columbia Theological Seminary	1	Howard Payne College	1
David Lipscomb College	1	Huntingdon College	5
Davidson College	2	Indiana State University	1
Dickinson College	1	Indiana University	2
Drew University	1	Iowa State University	1

Johnson C. Smith University	1	St. Augustine College	1
Kansas State University	1	State College of Arkansas	1
Kansas University	1	State University of New York at	
Karnatak University	1	Albany	1
Lenoir Rhyne	1	State University of New York at	
Limestone College	2	Oneonta	1
Livingstone College	1	Syracuse University	1
Louisiana State University	1	Talladega College	1
Lutheran Theological Southern		Tennessee Technological University	1
Seminary	1	Texas Christian University	1
Lynchburg College	1	Texas Wesleyan College	1
MacAlester College	2	Trinity College	1
Maine Maritime Academy	1	Union College	6
Mars Hill College	3	Union Theological Seminary	1
Marquette University	1	University of Alabama	3
Marshall University	1	University of Arkansas	3
McMurry College	2	University of Cincinnati	1
Melbourne College of Divinity	1	University of Colorado	1
Mercer University	1	University of Florida	1
Methodist College	7	University of Houston	1
Methodist Theological Seminary	2	University of Kentucky	1
Miles College	1	University of Kerala	1
Mississippi State University	1	University of Massachusetts	1
Moravian College	2	University of Miami	1
Morningside College	1	University of North Carolina at	
Mount Union College	1	Chapel Hill	18
Muskingham College	1	University of North Carolina at	
North Carolina A & T State		Charlotte	2
University	2	University of North Carolina at	
North Carolina State University	3	Greensboro	2
North Carolina Wesleyan College	15	University of North Carolina at	
Northeast Louisiana University	1	Wilmington	2
Northwest Missouri State University	1	University of Richmond	1
Oakland University	1	University of South Carolina	1
Oberlin College	1	University of Southern Mississippi	1
Ohio State University	1	University of Southwestern	
Pembroke State University	4	Louisiana	2
Pennsylvania State University	1	University of Tennessee	7
Pfeiffer College	10	University of Texas	1
Pilgrim College	1	University of Tulsa	1
Principia College	1	University of Vermont	2
Protestant Episcopal Theological		University of Virginia	3
Seminary in Virginia	1	Vanderbilt University	1
Purdue University	1	Virginia Commonwealth University	1
Randolph-Macon College	2	Virginia State College	1
Rhodes University	1	Wake Forest University	6
Richmond College	1	Washington & Lee University	2
Scarritt College	1	West Virginia University	4
Simpson College	2	West Virginia Wesleyan College	2
Smith College	2	Western Carolina University	2
Southeastern Baptist Theological		Western Kentucky University	1
Seminary	2	Wofford College	6
St. Andrew's Presbyterian College	1	Woman's College of Georgia	1

ENROLLMENT 1973-1974

Candidates for the Master of Divinity Degree

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Johnson, Carl Scott (B.S., University of North Carolina at Chapel Hill), Gastonia, North Carolina
Johnson, Janice Fowler (B.A., M.Ed., University of North Carolina at Chapel Hill), High Point, North Carolina
Johnson, Joseph (B.A., North Carolina State University), Southern Pines, North Carolina
Jolley, Leslie Carl (A.B., University of Alabama), Gadsden, Alabama
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Kelly, Darryl Anderson (B.A., University of North Carolina at Chapel Hill), Newport News, Virginia
*Kendrick, Schaefer Bryant (A.B., Washington & Lee University), Greenville, North Carolina
*Kennedy, James Keith (A.B., Duke University), Tucker, Georgia
Kersey, Clinton Walter (B.A., Furman University), McLean, Virginia
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Kincaid, Jacob Lawson (B.S., Wake Forest University), Gastonia, North Carolina
Kincheloe, John William III (B.A., Richmond College), Richmond, Virginia
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Knight, James Pierce (A.B., Duke University), Durham, North Carolina
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Kraus, Nancy Weigle (B.A., Duke University), Port Clinton, Ohio
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Langer, Warren Dexter, Jr. (B.A., College of Wooster), Leesburg, Florida
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Lee, James Carroll (B.S., Campbell College), Coats, North Carolina
Leeland, Paul Lee (B.A., North Carolina Wesleyan College), Washington, D.C.
Levin, Molly (B.A., North Carolina Wesleyan College), Winston-Salem, North Carolina
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Lipscomb, William Lowndes (A.B., Duke University), Oxford, Mississippi
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Longenecker, Daniel Charles (B.S., Albright College), Cleona, Pennsylvania
Lowdermilk, Robert Elbert III (A.B., Guilford College), Greensboro, North Carolina
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Martin, Elbert Garrett (A.B., Duke University), Raleigh, North Carolina
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 McKenzie, Charles Erwin (A.B., Davidson College), Laurinburg, North Carolina
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 Merriman, David Blair (B.S., Indiana State College), Pittsburgh, Pennsylvania
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 Mills, John Patrick, Jr. (B.A., University of North Carolina at Charlotte), Charlotte, North Carolina
 Monroe, Kenneth (A.B., Livingstone College), Red Springs, North Carolina
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 Morgan, Marvin Louis (B.A., Elon College), Burlington, North Carolina
 Morgan, Steven Douglas (A.B., Wofford College), Pickens, South Carolina
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 Morrison, Charles Kenneth (B.A., North Carolina Wesleyan College), Roanoke Rapids, North Carolina
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 Newsome, Clarence Geno (A.B., Duke University), Ahoskie, North Carolina
 Noyes, David Carey (B.S., Union College), Scranton, Pennsylvania
 Ogren, Mark Victor (B.S., Iowa State University), Ottumwa, Iowa
 O'Keef, Robert David (B.A., North Carolina Wesleyan College), Rocky Mount, North Carolina
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 Ottaviano, Daniel Henry (B.A., University of North Carolina at Chapel Hill), Asheboro, North Carolina
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- Durie, Barry Keay (B.A., Rhodes University; M.Div., Drew University), South Africa
- Lipphardt, John William, Jr. (B.A., West Virginia University; M.Div., Duke Divinity School),
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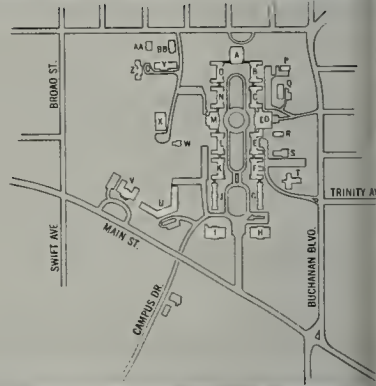
Auditors

- Myers, DeWitt L. (B.A., Baylor University; B.D., M.Th., Southeastern Theological Seminary),
Durham, North Carolina

MAP OF DUKE UNIVERSITY

East Campus

- | | |
|---------------------------|------------------------|
| A Baldwin Auditorium | O Pegram House |
| B Bassett House | P Duke Press |
| C Brown House | Q Infirmary |
| D Union Building | R Ark |
| E Faculty Apartments | S Crowell Building |
| F Art Museum, Geology | T Epworth Inn |
| G Aycock House | U Gilbert-Addoms House |
| H East Duke Building | V Southgate Hall |
| I West Duke Building | W Campus Center |
| J Jarvis House | X Woman's College |
| K Carr Building | Y Gymnasium |
| L Giles House | Z Asbury Building |
| M Woman's College Library | AA Bivins Building |
| N Alspaugh House | BB Art Building |
| | BB Branson Building |



West Campus

- | | | | |
|--------------------------|--------------------------|----------------------|-----------------------------|
| A Duke Chapel | H Hospital Main Entrance | O Craven Quadrangle | V Card Gymnasium |
| B Divinity School | I Gerontology, D & T, | P Wannamaker Hall | W Indoor Stadium |
| C Gray Building | Chical Research | Q Crowell Quadrangle | X School of Law |
| D Perkins Library | J Duke Hospital | R Clock Tower Court | Y Gross Chemical Laboratory |
| E Language Center | K Sociology, Psychology | S Kilgo Quadrangle | Z Biological Sciences |
| F Old Chemistry Building | L Social Sciences | T Union Building | AA Plant Environment |
| G Davison Building | M Allen Building | U Flowers Building | Laboratory |
| | N Few Quadrangle | Page Auditorium | BB Physics Building |
| | | | CC Nuclear Laboratory |
| | | | DD School of Engineering |
| | | | EE Army Research |
| | | | FF Medical Center Research |
| | | | Buildings |
| | | | GG Nanaline H. Duke Medic- |
| | | | Sciences Building |
| | | | HH Warehouse, Shop |
| | | | II Bell Building |
| | | | JJ Hanes House |
| | | | School of Nursing |
| | | | KK Hanes House Annex |
| | | | LL Pickens Rehabilitation |
| | | | Center |
| | | | MM Graduate Center |
| | | | NN Alumni House |
| | | | OO Commonwealth Studies |
| | | | Center |
| | | | PP Personnel Office |
| | | | QQ International House |
| | | | RR Personnel Office |
| | | | SS Education Improvement |
| | | | Program. |
| | | | A Better Chance Program |
| | | | TT International Studies |
| | | | Center |
| | | | UU Campus Stores Office |
| | | | VV Office of Institutional |
| | | | Advancement |
| | | | WW Information Services |
| | | | Visitors Bureau |
| | | | XX Admissions Office |
| | | | YY Edens Quadrangle |
| | | | ZZ Wade Stadium |







BULLETIN
of Duke University

1974



1975

MEDICAL CENTER

Bulletin of Duke University
The Medical Center

1974-1975

Durham, North Carolina 1974

Volume 46

May, 1974

Number 10

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School of Medicine Calendar 1974-1975

First Year (Freshmen) Students

1974

August	
30	Friday, 8:30 a.m.—Orientation
30	Friday—Fees and tuition payable
31	Saturday, 8:30 a.m.—Orientation
September	
2	Monday—Labor Day holiday
3	Tuesday, 8:10 a.m.—First day of academic year, 1974-1975, begin fall semester
October	
25	Friday—Fees and tuition payable
November	
27	Wednesday, 6:00 p.m.—Begin Thanksgiving holiday
December	
2	Monday, 8:10 a.m.—Classes resume
21	Saturday, 6:00 p.m.—Begin Christmas holiday

1975

January	
3	Friday, 8:10 a.m.—Classes resume
10	Friday—Fees and tuition payable
11	Saturday, 6:00 p.m.—End fall semester
13	Monday, 8:10 a.m.—Begin spring semester
March	
7	Friday—Fees and tuition payable
8	Saturday, 1:00 p.m.—Begin spring vacation
17	Monday, 8:10 a.m.—Classes resume
June	
28	Saturday, 6:00 p.m.—End spring semester

Second Year (Sophomore)*, Third Year (Junior)† and Fourth Year (Senior)† Students

1974

March	
8	Friday—Fees and tuition payable
9	Saturday—End Term 3, 1973-1974
9	Saturday, 12:00 Noon—Begin spring vacation

*Five terms of eight weeks duration.

†Four terms of eight weeks duration.

18 Monday, 8:00 a.m.—Classes resume, begin Term 4, 1973-1974
20 Wednesday—Registration for summer terms I and II, 1974, and
Terms 1, 2, 3, 4, 1974-1975

April

2-3 Tuesday-Wednesday—Preregistration for Graduate School fall
semester, 1974

May

1 Wednesday, 8:30 a.m.—Examination Day (all students)
10 Friday—Fees and tuition payable for summer term I, 1974
11 Saturday, 12:00 noon—End Term 4, 1973-1974
11-12 Saturday-Sunday—Graduation activities
13 Monday, 8:00 a.m.—Begin summer term I, 1974

July

4 Thursday—Independence Day holiday
5 Friday—Fees and tuition payable for summer term II, 1974
6 Saturday, 12:00 noon—End summer term I, 1974
8 Monday, 8:00 a.m.—Begin summer term II, 1974

August

30 Friday—Fees and tuition payable
31 Saturday, 12:00 noon—End summer term II, 1974

September

2 Monday—Labor Day holiday
3 Tuesday, 8:00 a.m.—First day of academic year 1974-1975, begin
Term 1, 1974-1975
4 Wednesday, 8:30 a.m.—National Boards, Part I
5 Thursday, 8:30 a.m.—National Boards, Part I

October

25 Friday—Fees and tuition payable
26 Saturday, 12:00 noon—End Term 1, 1974-1975
28 Monday, 8:00 a.m.—Begin Term 2, 1974-1975

November

27 Wednesday, 6:00 p.m.—Begin Thanksgiving holiday

December

2 Monday, 8:00 a.m.—Classes resume
21 Saturday, 12:00 noon—End Term 2, 1974-1975, begin Christmas holiday

1975

January

10 Friday—Fees and tuition payable
13 Monday, 8:00 a.m.—Classes resume, begin Term 3, 1974-1975

March

7 Friday—Fees and tuition payable
8 Saturday, 12:00 noon—End Term 3, 1974-1975, begin spring vacation
17 Monday, 8:00 a.m.—Classes resume, begin Term 4, 1974-1975
19 Wednesday—Registration for summer terms I and II, 1975, and
Terms 1, 2, 3, 4, 1975-1976

May

7 Wednesday, 8:30 a.m.—Examination Day (all students)
10 Saturday, 12:00 noon—End Term 4, 1974-1975
10-11 Saturday-Sunday—Graduation activities

University Administration

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†Member of Duke University Board of Trustees.

Medical Center Administration

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Bingham Dai, Ph.D., *Professor of Mental Hygiene and Psychotherapy*

*Effective September 1, 1974.

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Audit and Tissue

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Trent Prize

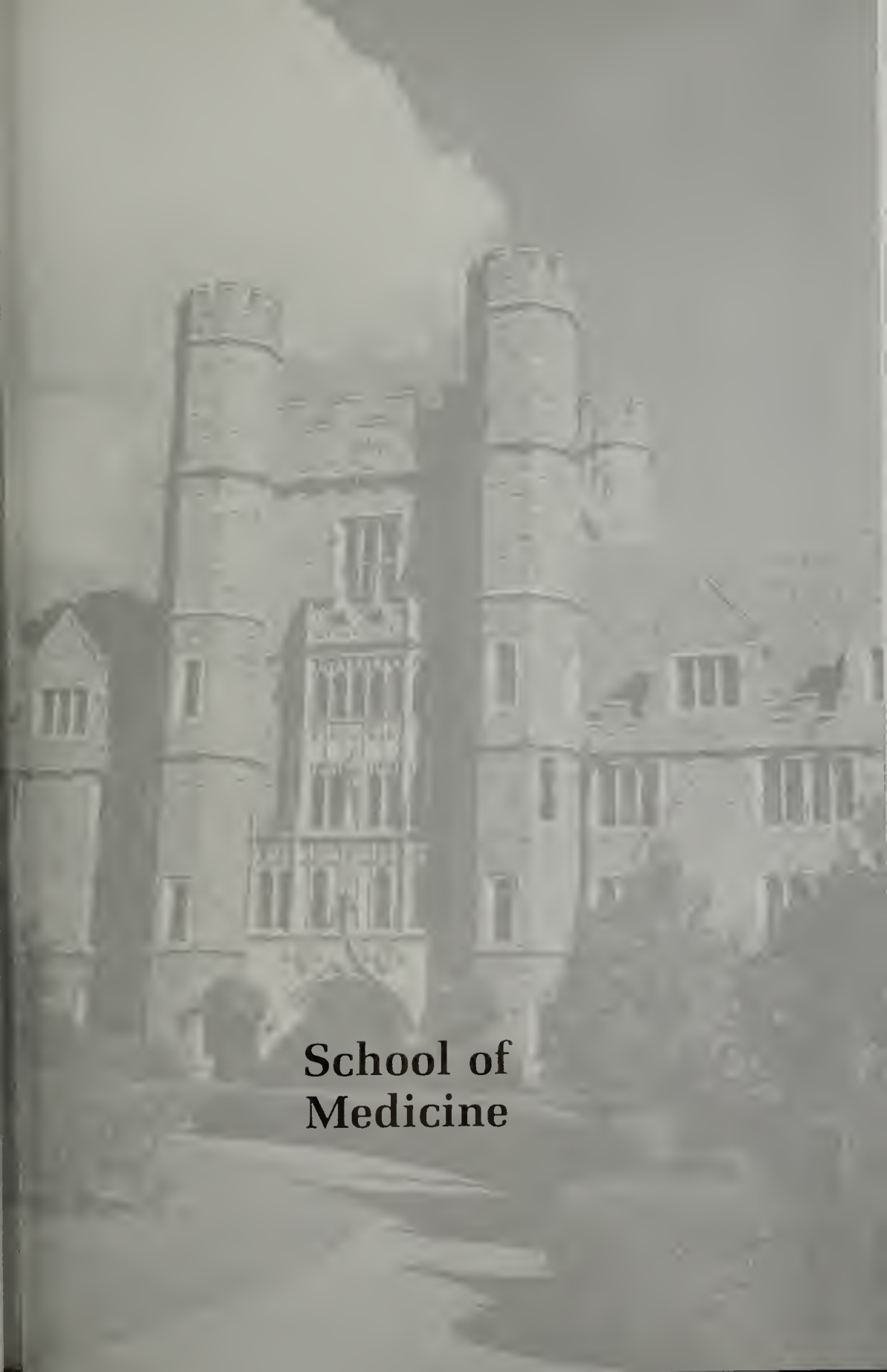
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**School of
Medicine**



1

General Information

History

In 1924, James Buchanan Duke established The Duke Endowment, and thus made possible the creation of Duke University.

I have selected Duke University as one of the principal objects of this trust because I recognize that education, when conducted along sane and practical, as opposed to dogmatic and theoretical, lines is, next to religion, the greatest civilizing influence.

I have selected hospitals as another of the principal objects of this trust because I recognize that they have become indispensable institutions, not only by way of ministering to the comfort of the sick, but in increasing the efficiency of mankind and prolonging human life . . . I very much hope that the people will see to it that adequate and convenient hospitals are assured in their respective communities . . . It is to these rural districts that we are to look in large measure for the bone and sinew of our country.

In Item VIII of his will, Mr. Duke bequeathed to The Duke Endowment ten million dollars for Duke University, of which four million dollars was to be expended for a medical school, hospital, and nurses' home at Duke University.

Wards and clinics in the hospital were named for eminent physicians and surgeons in order to remind the staff and students of what has been accomplished in medicine, as well as to follow Mr. Duke's Indenture: "I advise courses in history, especially the lives of the great of the earth."

The School of Medicine and Duke Hospital (consisting of 400 beds) were opened in 1930 under the leadership of the first dean, Dr. Wilburt C. Davison, who had recruited an outstanding faculty on a geographic full-time basis. During that same year, the first class of medical students, hospital administration students, and dietetic students were admitted. The Private Diagnostic Clinic was organized in 1932 to provide coordinated medical and surgical care for private patients of moderate incomes.

Over the years the Medical Center has been enlarged and its programs expanded by new construction, and by the acquisition of, and affiliation with, established hospitals.

Currently, the Medical Center at Duke University consists of the following buildings on the campus where the offices and departments listed are located: *Davison Building*—Departments of Anatomy, Ophthalmology, and Pathology, and Central Teaching Facility, Division of Audiovisual Education, Library, Medical Center Administration, Student Lounge, Office of Admissions; *Duke Hospital*—Departments of Anesthesiology, Medicine, Pediatrics, and Surgery, and Amphitheater, Chapel, Private Diagnostic Clinics, Outpatient Clinics, Pharmacy, and Physical Therapy; *Nanaline B. Duke Medical Sciences Building*—Departments of Biochemistry and Physiology-Pharmacology; *Gerontology Building*—Center on Aging, Department of Psychiatry, offices and laboratories of Medicine, Pediatrics, and Surgery; *Diagnostic and Treatment Building*—offices and clinics of Medicine, Surgery, Pediatrics, and Psychiatry; *Clinical Research I*—offices and laboratories of Medicine and Surgery and research wards; *Clinical Research II*—Hyperbaric Unit, offices and laboratories of Medicine, Surgery, Pediatrics, and Psychiatry, and the Clinical Cancer Research Unit; *Medical Research Laboratories*—offices and laboratories of Physical Anthropology, Microbiology, and Radiology; *Research Park*—Department of Microbiology and Immunology, offices and laboratories of Medicine, Surgery, Pediatrics, and Radiology; *Main Entrance Building*—Hospital Administration, offices and laboratories of Obstetrics-Gynecology and Pediatrics, delivery rooms, and the Emergency Service; *Baker House*—offices of Nursing, Medicine, Surgery, Obstetrics-Gynecology, Hospital Administration, and Pastoral Care and Counseling; *Bell Building*—Offices and laboratories of Medicine, Surgery, Pediatrics, Radiology, Anatomy, and Ophthalmology, and Information Services, Gross Anatomy Laboratories, and the Research Training Program; *Pickens Rehabilitation Center*—General and Rehabilitation Outpatient Clinics; Student Health Service, Employee Health Service, and Faculty Family Health Service; *Civitan Mental Retardation and Child Development Center*—offices, clinics, and laboratories of Psychiatry and Pediatrics; *Graduate Center*—Department of Community Health Sciences; *Alex Sands Medical Science Building*—Department of Anatomy and clinical science research programs of the Departments of Medicine, Surgery, Psychiatry, and Anesthesiology; *Eye Center*—patient-care activities of the Department of Ophthalmology as well as their offices and laboratories.

Construction has begun on two buildings which will be components of the Comprehensive Cancer Center. One will be a basic cancer research medical sciences building and the other, a special animal laboratory and isolation facility for work with tumor viruses.

Duke University Medical Center continues to strive to be a leader in contemporary medicine. This involves maintaining superiority in its four primary functions: unexcelled patient care, dedication to educational programs, national and international distinction in the quality of research, and service to the region.

Growth is identified with a deeper involvement in the social aspects of health, the establishment of many advanced therapeutic and research facilities, a building program that will require one or more decades for its completion, and a new and imaginative revision of the medical teaching program that has attracted the attention of educators around the world.

Resources for Study

Library. Located in the Davison Building, the Medical Center Library serves the faculty, staff, and students with holdings of 125,000 volumes

and 2,000 periodicals. A professional reference service is available daily to assist readers in the use of the collections, catalogs, indexes, and other resources. Audiovisual aids are maintained for the use of individual students.

The library includes the Trent Collection which is considered unsurpassed in the Southeast as a resource for the study of the history of medicine. Much of the material is of interest to literary and classical scholars as well as to those concerned with the history of medicine.

Branch collections of books and journals are maintained in the Nana-line B. Duke Medical Sciences Building and the School of Nursing.

The Medical Center Library is open: 8:30 a.m.-midnight—weekdays; 8:30 a.m.-11:00 p.m.—Saturday; 10:00 a.m.-11:00 p.m.—Sundays. Summer and holiday hours are as announced.

Director and Curator: G. S. T. Cavanagh, B.S., B.L.S. (McGill, 1951), *Professor of Medical Literature*; Associate Director: Warren P. Bird, B.S., M.S. (Columbia, 1964), *Assistant Professor of Medical Literature*.

The Central Teaching Facility. The Central Teaching Facility, located on the fourth floor of Davison Building, provides laboratory, demonstration, and conference space for all courses taught in the basic sciences with the exception of gross anatomy. A full-time staff maintains a wide range of equipment and provides supplies and services necessary for the teaching programs conducted in the facility, thus enabling the academic staff of each department to devote its efforts entirely toward the students.

Six unit laboratories, each accommodating twenty students, and a twelve man M.D.-Ph.D. candidate laboratory are devoted to first year instruction. Each first year medical student is given a place in one of these





laboratories for his own work area which he maintains for the entire academic year. Four small laboratories are interspersed between the six unit laboratories and provide space for large pieces of equipment used in conjunction with exercises conducted in the unit laboratories. They also provide space for small laboratory projects. Two large multipurpose laboratories can accommodate over fifty students each in one of a large variety of formats required in a number of first year teaching exercises. Other areas include demonstration and conference rooms and a microcopy laboratory for advanced courses.

In addition to providing services to the School of Medicine, the Central Teaching Facility provides its resources for use throughout the year by various allied health science programs.

Division of Audiovisual Education. The Division of Audiovisual Education serves the Medical Center by providing all types of audiovisual materials to assist the faculty. There are three subdivisions: the Medical Art Facility, the Medical Photography Facility, and the Central Television Facility.

The Medical Art Facility provides illustrations produced by various art methods and techniques. Services rendered are medical illustrations, schematic and mechanical drawings, diagrams, charts, graphs, designs, lettering, signs, casts, models and exhibits, and other forms of illustrations.

The Medical Photography Facility is staffed and equipped to provide all photographs needed in the diagnosis and treatment of patients, for teaching, and in research. For example, the photographers take pictures of patients, including such fine details as the patterns of vessels on the retinae or those of the skin as they are revealed by infrared light. Standard sized slides, transparencies, and prints are produced as requested.

The Central Television Facility also provides services for teaching, research, and patient-care programs. During the past several years, a collection of videotaped materials has been produced for group teaching and individual student study. In addition, a two-channel television link (ITFS) has been established between the Central Television Facility and the Durham V. A. Hospital. This link makes possible two-way, two-channel transmissions for use in educational programs. Motion pictures in color and with sound are produced by this section also. Classroom services, projectionists, and projectors are provided.

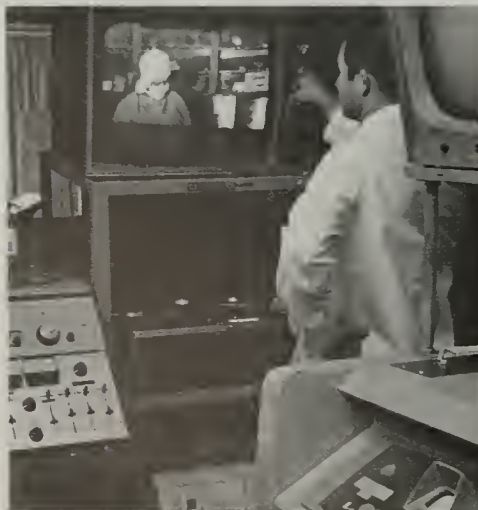
Although no formal study programs in medical art, medical photography, and medical television are scheduled, individual training, tailored to the students' need, is available.

Director: Sam A. Agnello, A.B.

Duke Hospital. Duke Hospital, one of the largest private hospitals in the South, is an integral part of the Medical Center and currently has 850 beds. The hospital directs its efforts toward three goals of expert patient care, professional education, and service to the community. It offers patients modern comprehensive diagnostic and treatment facilities and special acute care and intensive nursing units for seriously ill patients. Ambulatory patients who need little nursing attention may be admitted to a minimal care unit. Surgical facilities include eighteen operating rooms where hospital surgeons perform more than 13,000 operative procedures annually. Approximately 1,800 babies are born each year in the delivery suite. Other special facilities for patients include a heart catheterization laboratory, cancer research unit, pulmonary care unit, hyperbaric oxygenation chamber, and cardiac care unit.

The over 27,000 patients admitted annually have their choice of private, semi-private, or ward accommodations. Close working relationships with private and governmental health and welfare agencies provide opportunities for continued care of patients after they leave Duke Hospital.

Ambulatory services include the nonprivate outpatient clinics, private diagnostic clinics, the employee health office, and the emergency department, with annual total patient visits of 370,000. The clinical faculty of Duke University School of Medicine participates in undergraduate and graduate medical education and practices medicine in the hospital and private diagnostic clinics.



Duke Hospital with a house staff of approximately 490 is approved for internship and residency training by the Council on Medical Education and Hospitals of the American Medical Association and is fully accredited by the Joint Commission on Accreditation of Hospitals.

Veterans Administration Hospital. The Durham Veterans Administration Hospital, with 489 beds, annually admits over 7,000 patients. Within walking distance from the School of Medicine, closely integrated teaching and training programs for medical students and house staff are provided by the full-time professional staff who are members of the faculty of Duke University School of Medicine.

Highland Hospital. Highland Hospital, in Asheville, North Carolina, is a 131-bed, private, nonprofit, psychiatric hospital. It was founded in 1904 by Dr. Robert S. Carroll, who donated the hospital in 1939 to the Duke University Medical Center. In July, 1967, Highland Hospital was fully integrated into the Duke University Medical Center as a division of the Department of Psychiatry.

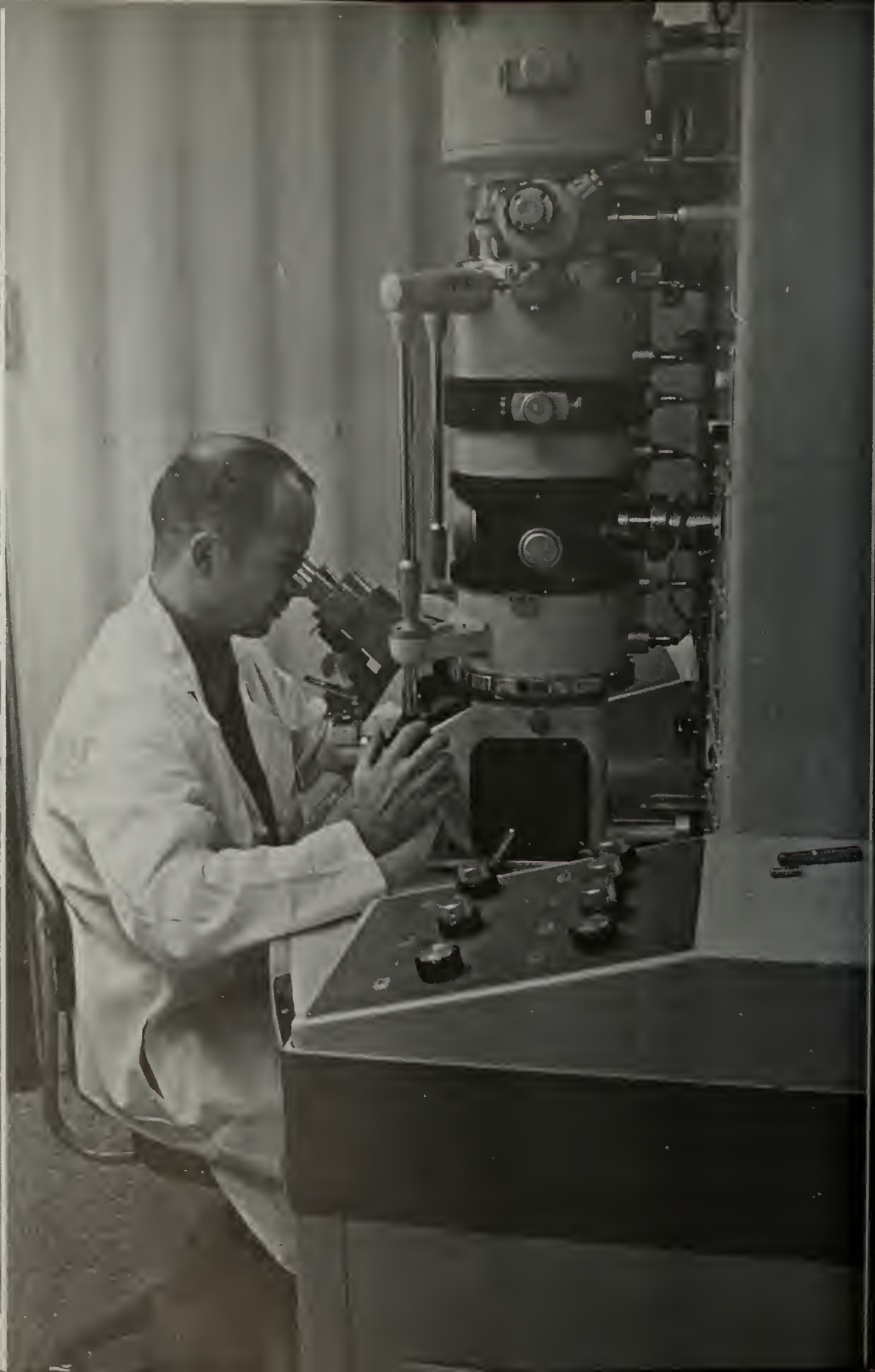
All full-time psychiatrists, psychologists, and social workers at Highland Hospital hold academic appointments in the Department of Psychiatry of the Duke University Medical Center. The faculty at Highland is active in teaching psychiatry, psychology, and psychiatric social work to medical students, psychiatric residents, student psychologists, student social workers, and physician's associate students. Members of the faculty may also be involved in psychiatric and psychological research as well. These academic endeavors, and a striving for excellence that accompanies them, provide a stimulating atmosphere for the best possible patient care.

Sea Level Hospital. Sea Level Hospital in Carteret County, North Carolina, became part of Duke University Medical Center in 1969 as a result of a gift by D. E. Taylor and family of West Palm Beach, Florida. The 74-bed community hospital retains its professional and administrative staff, with representatives of the Medical Center serving in an advisory capacity. It provides an opportunity for medical students to obtain experience in the practice of medicine in a small community.

Lenox D. Baker Cerebral Palsy and Crippled Children's Hospital. The North Carolina Cerebral Palsy Hospital, with 40 beds, is a residential rehabilitation center for children with neuromuscular and skeletal diseases, primarily cerebral palsy. Although it is a state institution, physicians on the faculty of the Duke University Medical Center conduct interdepartmental teaching and training programs for house staff, medical students, and the Cerebral Palsy Hospital staff.

Watts Hospital. Watts Hospital is a county-owned, 318-bed, general, short-term care community facility serving the residents of Durham County. This institution participates in many of the medical and health-related professional training experiences.

Other Hospitals. Various cooperative teaching and training programs are available for medical and allied health professional students and house staff at other hospitals including Lincoln and McPherson Hospitals in Durham, Oteen Veterans Administration Hospital in Buncombe County, Murdoch Center for Retarded Children and John Umstead Hospital in Butner, Dorothea Dix Hospital in Raleigh, and Cabarrus Memorial Hospital in Concord, North Carolina.



2

Program Information

The Medical Curriculum

In recent years, analysis and appraisal of medical curricula have resulted in changes in many medical schools. Several factors have required these changes. Important among them are the increasing scope and complexity of medicine generally, and the dissatisfaction with the sharp cleavage between basic science and clinical years. As a result of long study, the Duke University School of Medicine instituted a major revision of the curriculum, beginning with the class which entered in the fall of 1966.

The aims of the present curriculum are: (1) to provide a strong academic basis for a lifetime of growth within the profession of medicine, with the development of technical competency, proficiency, and the proper attitudes peculiar to the practice of medicine as well as appreciation of the broader social and service responsibilities; (2) to establish for the first year a basic science program which will fulfill the purposes of the increasingly heterogeneous student body; (3) to offer both clinical and basic science education simultaneously; (4) to permit the student to explore his personal intellectual preferences and capabilities; (5) to allow in-depth study in selected areas, either clinical or basic science; (6) to provide greater freedom of course selection and thus to encourage earlier career decision; and (7) to achieve better integration of the medical school curriculum with residency training and the practice of medicine.

The curriculum, while offering a previously unattainable degree of flexibility to medical education and new opportunities for intellectual exploration, also makes heavy demands upon the student. It should be recognized that a medical student at Duke University School of Medicine is expected to maintain a consistent level of attainment and to demonstrate qualities of initiative and dedication to his chosen profession. A scholarly attitude toward medicine that will continue throughout an entire career is an important objective of the Medical School. The foundations of this attitude to learning should accompany the student when he enters.

A student is expected to maintain at all times a professional attitude toward patients, to respect confidences, and to recognize that he is the recipient of privileged information only to be discussed within the context of scholarship and in circumstances that truly contribute to the educational process or the care of the patient. This attitude involves consideration not only of speech and personal appearance but also of morality, honor, and integrity.

Doctor of Medicine Degree

The degree of Doctor of Medicine is awarded upon approval by the faculty of Duke University to those students who have completed the curriculum of the School of Medicine, who have demonstrated their fitness to practice medicine by adherence to a high standard of ethical behavior and morality, and who have paid or made satisfactory arrangements to pay all indebtedness to the University. Students are required to take Part I of the National Board Examinations on a candidate basis, during either September or June following successful completion of the first year.

Course Requirements—First Year. The student will study the principles of all the basic science disciplines. Rather than mastering an encyclopedic array of facts, the purpose will be to acquire familiarity with the major principles of each subject. An introduction to clinical medicine will be presented by the clinical services. The year will be divided into two terms of instruction, of eighteen weeks and twenty three weeks, as follows:

Term 1	Credit
Gross Anatomy	3
Microanatomy	3
Neuroanatomy	2
Biochemistry	5
Physiology	5
Genetics	<u>1</u>
	19
Term 2	Credit
Pathology	5
Microbiology	5
Introduction to Clinical Diagnosis: Laboratory, Physical, and Radiologic Diagnosis	5
Pharmacology	4
Human Behavior	2
Community Health Sciences	2
Immunology	<u>1</u>
	24

Course Requirements—Second Year. The second year will provide an exposure to clinical science disciplines, which permit the student early in his career to become a participant in the care of patients. The acquired appreciation of the problems of the clinical areas and the opportunities to recognize the applications of the basic sciences should lead to a more meaningful selection of courses for the subsequent two years. The second year will be divided into five terms of eight weeks each as follows: medicine, obstetrics, pediatrics, psychiatry, and surgery.

Course Requirements—Third and Fourth Years. These two years will be made up of elective courses, selected by the student within requisite limitations. Each student will choose professional advisers from the pre-clinical and clinical faculties to assist him in formulating his program for the third and fourth years. Half of the time must be devoted to basic science and half to clinical science. Completion of the Medical Research Training Program or one of the special study programs may fulfill the requirements for basic science.

The elective courses of study offered are described under each department. The wide selection affords an opportunity for each student to design his program to satisfy best his needs in conformity with his medical future, with guidance from his advisers.

As an alternative after completion of the second year, the student may enroll as a Ph.D. candidate in one of the basic sciences, earning this degree in two or three years. Then, having completed three of the four years necessary for a Doctor of Medicine degree, he may earn that degree by completing a fourth clinical year.

The third and fourth years will be divided into eight terms of eight weeks each. Certain courses as noted will be offered during two summer terms.

Promotion. The records of each student are reviewed periodically by promotion committees comprised of the department chairmen. The Director of Medical Education acts on the recommendations received from the promotion committees and may:

1. Promote students whose work is satisfactory.
2. Warn students whose work is less than satisfactory that they must improve their scholastic endeavor.
3. Place on probation students whose work is unsatisfactory.
4. Request the resignation of any student who is considered an unpromising candidate for the degree of Doctor of Medicine.

A student wishing to appeal a decision may do so to the Director of Medical Education within two weeks of his notification.

The Director, with the advice of the Medical School Advisory Committee, reserves the right to require the withdrawal of any student at any time if, in the opinion of the majority of committee members, the student should not continue in the Medical School.

Combined Degree Programs

Medical Scientist Program. The Medical Scientist Training Program, conducted under the auspices of the School of Medicine and the Graduate School, is designed for highly qualified students strongly motivated toward a career in medical sciences and academic medicine. It provides an opportunity to integrate graduate education in one of the sciences basic to medicine with the clinical curriculum of the School of Medicine. The Program requires six to seven years of study and leads to both the M.D. and Ph.D. degrees. While the special emphasis of this program is on basic medical science, the trainees, because of their education in clinical medicine, have a remarkable range of career opportunities open to them. Graduates of this program generally follow one of two broad paths. Some directly pursue careers in teaching and research in one of the basic medical sciences, while maintaining strong ties with clinical science as a result of their

combined training. Others enter residency programs before pursuing investigative and teaching careers in clinical medicine, carrying with them strong academic backgrounds in the basic sciences.

Eligibility. Applicants must meet the admission requirements of both the Medical School, as a candidate for the M.D. degree, and the Graduate School as a candidate for the Ph.D. degree. Most candidates apply for admission to the first year of the program, but applications are accepted from students who are in residence in the Medical School or Graduate School of Duke University. In addition to the minimum requirements for acceptance in the Medical School and the Graduate School, advanced course work in science and mathematics as well as prior research experience will count heavily in the selection of candidates.

Financial Support. Those students accepted into the first year of the program will be offered a traineeship award provided by a Medical Scientist Training Program Grant from the National Institutes of Health. This award includes a stipend plus full tuition. The stipend levels are equivalent to the current U.S. Public Health Service predoctoral and postdoctoral fellowships. Stipends begin at \$2,400 plus \$500 per dependent and increase to \$5,000 plus \$500 per dependent beginning with the fifth year.

The Training Program. This program has been designed to offer trainees great latitude in the selection of course material. Basic requirements are two academic years composed of the first basic science year and the second clinical science year of the curriculum for medical students at Duke University. Following completion of the second year, the trainee enters the graduate program to complete the requirements for the Ph.D. degree. One more academic year of elective clinical study is necessary to complete the requirements for the M.D. degree. Both degrees are awarded at the completion of this sequence.

Year 1—core basic science year—this year consists of courses in anatomy, biochemistry, genetics, microbiology, pathology, pharmacology, and physiology. An introduction to clinical methods concludes the first year. Students in the Medical Scientist Training Program work together throughout the first year, during which time they are encouraged to select their field of graduate study. In the summer between the first and second years, trainees normally will be expected to enter a second-year clinical rotation.

Year 2—core clinical science year—this year provides a comprehensive study of clinical medicine, oriented to the patient as a whole. The relationships between general biological processes and individual clinical states are emphasized. During the second year, the trainee is taught by teacher-investigators from the clinical departments. The core clinical year is divided into five terms of eight weeks each, encompassing medicine, obstetrics, pediatrics, psychiatry, and surgery.

Years 3, 4, 5, (6)—the graduate years—during the third, fourth, fifth and, if necessary, sixth year of the program, the trainee pursues graduate study in order to satisfy the requirements for the Ph.D. degree. These requirements include: (1) completion of necessary course work, (2) adequate performance in the preliminary examination, (3) original research suitable for a dissertation, and (4) successful defense of the thesis in the final examination. Detailed descriptions of other general requirements for the Ph.D. degree and of the graduate courses in the Departments of Anatomy, Pathology, Microbiology, Biochemistry, Genetics, Physiology, Pharmacology, Biomedical Engineering, and Computer Science are provided in the *Bulletin of the Graduate School*.



Terminal Year—an elective year in clinical science—this year, which is entered only after completion of all requirements for the Ph.D. degree, provides further training in clinical medicine to complement the second or core clinical year, so that the trainee's total clinical experience is the same as that obtained in the regular clinical years of medical school (the third and fourth years in the majority of schools). It should be noted that since students in the Program receive the M.D. degree upon completion of this final year, great care is taken by the faculty to ensure that students are competent and knowledgeable in current concepts of patient care.

Application and Admission Procedure. The following guidelines should be observed by individuals applying to the Medical Scientist Training Program.

1. The application form for the Duke University School of Medicine should be completed and submitted early. Although acceptance into the Medical Scientist Training Program is contingent upon prior acceptance into the School of Medicine, the decision of the MSTP Selection Committee does not affect application for Medical School admission.
2. The application form for the Medical Scientist Training Program should be completed and submitted with the application to the School of Medicine. To insure full consideration by the Program Selection Committee, this application should be mailed by November 1.
3. To facilitate review of this application, the Medical College Admission Test should be taken, whenever possible, in May of the year that the application will be submitted.
4. Only those applicants who are accepted for the Program will be requested to complete an application form for the Graduate School. The Graduate Record Examination is not required for this purpose.

5. Applicants will be notified about acceptance into the Program on or about February 15.
6. Faculty and student members of the Medical Scientist Training Program will be available to furnish further information to applicants visiting Duke University.

Additional information may be obtained by writing Robert E. Fellows, M.D., Ph.D., Associate Director, Medical Scientist Training Program, Box 3709, Duke University Medical Center, Durham, North Carolina 27710.

The Medical Historian Program. The Medical Historian Program is conducted under the auspices of the School of Medicine and the Graduate School to provide professionally trained medical historians. A minimum of six years of graduate study is required. Upon satisfactory completion of the program, the Doctor of Medicine and Doctor of Philosophy degrees will be awarded. It is anticipated that graduates will undertake a minimum of one year of postgraduate medical training, following which their major effort will be in teaching and scholarly activities (in the field of the history of medicine), with minor clinical responsibilities.

Basic requirements are two academic years in the School of Medicine consisting of core basic sciences in the first year ending with the course *Introduction to Clinical Medicine*, and core clinical sciences during the second year, following which the student enters the Department of History in the Graduate School.

Candidates for the Ph.D. degree in history devote approximately two full years to the completion of their required courses, work in seminars, and in preparatory study for their preliminary or qualifying examinations. The actual length of time needed to earn the Ph.D. degree depends upon the number of years beyond this two-year period candidates find necessary for research and writing of their dissertations. Candidates will pursue studies in the Department of History during the third and fourth academic years of the program. In the fifth and sixth years, the student should have one year in which to pursue medical-historical research and one year of elective courses in the School of Medicine to fulfill the requirements for the M.D. degree.

Application and Admission Procedures. Applicants must meet the requirements for admission to the School of Medicine and the Graduate School in the Department of History. Candidates who have completed two years of medical school will also be considered.

In addition to the minimum requirements established by the School of Medicine and the Graduate School, courses in history and in the history and philosophy of science will count heavily in the selection of candidates.

Applicants should complete and submit an application form to the Duke University School of Medicine. After preliminary screening, selected candidates will be requested to submit an application to the Graduate School for admission to the Department of History.

Additional information may be obtained by writing to Gert H. Brieger, M.D., Ph.D., Director, Medical Historian Program, Box 3702, Duke University Medical Center, Durham, North Carolina 27710.

The M.D.-J.D. Program. The School of Medicine and the School of Law of Duke University have jointly established a unique program of combined medical and legal education. The aim of the program is to provide to a small number of selected individuals the opportunity to acquire a full education in both medicine and law during a six year course of closely integrated

study in the two fields. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.D. and J.D. degrees.

Objectives. The Duke M.D.-J.D. Program seeks to develop a new breed of dual professional who is well grounded both in law and medicine and who can function usefully in any one of numerous academic, governmental, or private professional capacities, in areas of overlap between the two disciplines. Although the traditional meeting ground between law and medicine has been in the courtroom in connection with personal injury and malpractice litigation, entirely new areas of medical-legal interaction have developed in recent years. The program seeks to concentrate its interests and efforts in these emerging fields. The program will thus focus on the legislative and regulatory developments concerning various aspects of medicine and on the role of law in structuring health care delivery systems and in defining the rights and responsibilities of the participants therein. Another important area of concentration will be that of law and psychiatry.

Career Opportunities. The M.D.-J.D. Program will take a keen interest in its graduates and will assist them in finding ways of employing their special skills. It is considered likely that most graduates of the program will take a medical internship before electing a career role as either a physician or a lawyer, using his other professional training as a useful adjunct in the specialty selected. The program reflects the belief that promising career opportunities will be available to graduates of the program, especially in governmental agencies and in universities.

Course of Study. The student in the M.D.-J.D. Program begins his six year course of study in the School of Medicine. As in the regular program for the M.D. degree, his first year is devoted to the basic medical sciences and the second year to the basic clinical disciplines. At this point the student enters the School of Law, where his first year curriculum is the same as that of other law students. During the next two years, he selects courses in the Law School which are of special application to his medical-legal interest, and his sixth and final year is spent in elective clinical work in the Medical School, which may be tailored to his specialized needs. In addition, the student will be required to complete additional elective basic science work amounting to eighteen hours or two summer sessions. His other summers will be unscheduled, but opportunities will be presented to engage in medical-legal endeavors suited to his developing interests.

Throughout the six year program the student will have available to him the counsel of faculty members of the two schools to help him in the selection of courses and in the definition of his career objectives.

Eligibility. Applicants for the M.D.-J.D. Program must qualify for admission to both the School of Medicine and the School of Law, and must submit separate applications to each school. In each separate application students must indicate their interest in the M.D.-J.D. Program. After acceptance for admission by both schools, applications for the program will be reviewed for approval by the Law-Medicine Joint Faculty Committee, which is composed of faculty members from the two schools. Personal interviews will be required.

Because of the special intellectual demands involved in mastering two professions, high standards will be applied in admitting students to the program. Students will also be evaluated on the basis of motivation and demonstrated interest and likely achievement in the fields relevant to the program's concerns.

In view of the highly specialized character of the field, it is anticipated that enrollment in the program will be limited. Probably no more than three students will be accepted in any one year.

Financial Support. At the present time, no special financial aid is available to the students enrolled in the M.D.-J.D. Program. However, the regular loan and scholarship resources of the respective professional schools are available to students while they are enrolled. The program is of such a nature that students may find available support from special sources for their education in this field. The University will assist in seeking out such funds and will support students in their applications.

Application Procedure. Applicants should apply to the School of Medicine, indicating on application forms that they wish to be considered for the M.D.-J.D. Program. All requirements for admission to the School of Medicine, including MCATs must be met. Applicants should also apply to the School of Law, indicating on these application forms that they wish to be considered for the M.D.-J.D. Program. All requirements for admission to the School of Law, including LSATs, must be met. Once an applicant has received unconditional admission to each school, a joint faculty Law-Medicine Committee will meet with the applicant to design an individual program of study. Additional information regarding the M.D.-J.D. Program may be obtained by contacting the Director, M.D.-J.D. Program, Duke University Medical Center, Durham, North Carolina 27710.

The M.D.-M.H.A. Program. The objective of this program is to provide selected individuals with an opportunity to acquire education in both medicine and health administration through a combined program of closely integrated courses over a five-year period. This program is designed primarily to train physicians qualified to assume leadership roles in the development and management of both existing and emerging health care delivery organizations. Emphasis is placed on the formulation, analysis, and evaluation of competitive and cooperative decisions and structures within the health care setting. A major advantage of the combined program is the completion of all studies in five years, instead of the six to seven years required if both programs are taken sequentially.

Students undertaking this program enter the Department of Health Administration after the completion of their second year of medical studies. They then take the first three semesters of the basic M.H.A. curriculum, substituting only one course. Following this work, they return full time to the School of Medicine to complete their third and fourth year of medical studies. During these last two years they must take two additional three-hour courses in health administration. Other courses in the department, or from the Graduate School of Business Administration, may also be elected, but this is not required. During the summer between the third and fourth year of medical studies, the students spend full time in a special rotating administrative residency. The terminal year (fifth year) is devoted to completing the curriculum of the School of Medicine. Upon the successful completion of all studies, candidates are awarded both the M.D. and M.H.A. degrees.

Admission Procedures. Applicants must be qualified for admission to the School of Medicine and the Department of Health Administration. Interested students do not need to apply to the M.H.A. program before entering the School of Medicine; they may do so any time prior to completing their fourth semester of medical studies. However, admission to the M.H.A. program



following enrollment in the School of Medicine requires the concurrent approval of the School.

Application. Inquiries about this program and requests for application forms should be addressed to the Chairman, Department of Health Administration, Box 3018, Duke University Medical Center, Durham, North Carolina 27710.

The M.D.-M.P.H. Program. Students enrolled in the School of Medicine, after satisfactory completion of the first two years of the regular curriculum, may request approval to seek a Masters of Public Health degree at University of North Carolina, Chapel Hill, or at another approved institution. The program is designed to train physicians in epidemiology and in planning, administering, and evaluating health care delivery systems. Upon receipt of the degree, students are awarded a designated number of credits toward satisfaction of requirements for the M.D. degree at Duke.

For additional information interested students should contact the Chairman, Department of Community Health Sciences, Duke University School of Medicine, Durham, North Carolina 27710.

Postgraduate Education

Internships and Residencies. Straight internships of one year duration are available in the Departments of Medicine and Pathology. Appointments are from July 1 through June 30 with few exceptions. Interns receive stipends, professional liability insurance, disability insurance, life insurance, uniforms, and laundry of uniforms.

Residencies offered with the chairman or chief of each service are as follows:

Anesthesiology	(Chm.) Merel H. Harmel, M.D.
Family Practice	(Chm.) Harvey Estes, M.D.
Internal Medicine	(Chm.) James B. Wyngaarden, M.D.
Dermatology	J. Lamar Callaway, M.D.
Neurology	Stanley H. Appel, M.D.
Obstetrics and Gynecology	(Chm.) Roy T. Parker, M.D.
Ophthalmology	(Chm.) Joseph A. C. Wadsworth, M.D.
Pathology	(Chm.) Thomas D. Kinney, M.D.
Pediatrics	(Chm.) Samuel L. Katz, M.D.
Pediatric Allergy	Susan C. Dees, M.D.
Pediatric Cardiology	Madison S. Spach, M.D.
Psychiatry	(Chm.) Ewald W. Busse, M.D.
Radiology	(Chm.) Richard G. Lester, M.D.
Diagnostic Radiology	Richard G. Lester, M.D.
Nuclear Medicine	Jack K. Goodrich, M.D.
Therapeutic Radiology	Patrick J. Cavanaugh, M.D.
Surgery	(Chm.) David C. Sabiston, Jr., M.D.
General Surgery	William G. Shingleton, M.D.
Neurosurgery	Guy L. Odom, M.D.
Oral Surgery	Nicholas G. Georgiade, D.D.S., M.D.
Orthopaedic Surgery	J. Leonard Goldner, M.D.
Otolaryngology	William R. Hudson, M.D.
Plastic Surgery	Kenneth L. Pickrell, M.D.
Thoracic Surgery	Will C. Sealy, M.D.
Urologic Surgery	James F. Glenn, M.D.

Duke University Medical Center is a participating member of the National Intern and Resident Matching Program, 2530 North Ridge Avenue, Evanston, Illinois, and all applicants must register with this program. The hospital is a member of the American Hospital Association approved by the American Medical Association for internship and residency training, and the Joint Commission on Accreditation of Hospitals.

Both men and women graduates of any Class A medical school are eligible for appointments. Internships are rarely available to graduates of medical schools outside the United States and Canada, but a limited number of residencies and research fellowships are available following certification by ECFMG (Educational Council on Foreign Medical Graduates, 1710 Orrington Avenue, Evanston, Illinois). All applicants will be considered without regard to race, color, religion, sex, or national origin.

The Durham Veterans Administration Hospital adjoins the Duke University Campus and is operated under the supervision of the Vice President's Committee of the Duke University Medical Center. The full-time professional staff of the V. A. Hospital are all faculty members of the School of Medicine. All training programs are integrated with corresponding programs at Duke

University Medical Center including rotation of house officers at each hospital.

All interns, residents, and clinical fellows are required to be licensed by the State of North Carolina. This may be accomplished by (1) a residency training license (fee \$10.00) that covers only training at Duke and it is not convertible to a full North Carolina license or (2) a full North Carolina license (fee \$100.00) that is a complete medical license obtained either by State Boards or National Boards and is fully reciprocal with other states for full licenses. Duke Medical Center cannot make applications for house staff. Since house staff members should have the license before beginning duties, arrangements for the license should be made in advance. For additional licensure information, contact Dr. Joseph J. Combs, North Carolina State Board of Medical Examiners, 222 North Person Street, Raleigh, North Carolina 27601.

Application forms and information for internships, residencies, or fellowships may be obtained by writing the chairman of the appropriate department, Duke University Medical Center, Durham, North Carolina 27710.

Continuing Medical Education. Numerous formal postgraduate courses are given throughout the entire year for physicians in general practice as well as in all specialties. Conferences and tutorial seminars are also available to any physician who desires to attend and participate. Physicians in practice may make arrangements for a period of one day or more for courses tailored to their particular interests. These personal contacts with senior faculty and residents, including patient examinations as well as follow-up care, provide in-house training experience.

The annual one-week course held in Atlantic Beach in mid-July continues to be one of the most well attended programs in the region.

For additional information, please contact William J. A. DeMaria, M.D., Associate Director, Continuing Education, Duke University School of Medicine, Durham, North Carolina 27710.



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Student Life

The University

Duke University, located in Durham, North Carolina, has an enrollment of 9,675 students from all fifty states and many foreign countries. Currently Trinity College of Arts and Sciences, the Graduate School, and the Schools of Business Administration, Divinity, Engineering, Forestry, Law, Medicine, and Nursing constitute the University.

Durham, with a population of approximately 100,000, is in the Piedmont region of North Carolina, which has easy access to the sea coast and mountains. It is one of the three cities bounding the Research Triangle Park where numerous private research laboratories and governmental agencies are located. Duke University is twenty-five miles from North Carolina State University in Raleigh and eight miles from the University of North Carolina (UNC) in Chapel Hill.

Conduct of Students

Duke University expects and will require of all its students cooperation in developing and maintaining high standards of scholarship and conduct.

All students are subject to the rules and regulations of the University as are currently in effect or, from time to time, are put into effect by the appropriate authorities of the University.

Any student, in accepting admission, indicates his willingness to subscribe to and be governed by these rules and regulations and acknowledges the right of the University to take such disciplinary action, including suspension and/or expulsion, as may be deemed appropriate, for failure to abide by such rules and regulations, or for conduct adjudged unsatisfactory or detrimental to the University.

Living Accommodations

Residence Hall Accommodations. The Graduate Center, located near the Duke Medical Center, houses 149 male graduate and professional school students, 56 women graduate and professional school students, and 119 undergraduate women. All assignments are made on a first-apply, first-assigned basis.

The graduate women's section is located in the center and south wings of the second floor whereas undergraduate women reside on the third floor. Women's sections are physically separated from the men's residential area. Resident counselors serve both men and women occupants and function with a house committee representing student residents.

The limited number of single rooms, located in the men's section, are usually reserved by previous occupants for the following academic year. Other rooms are equipped for two persons. Each double room is equipped with the following for each student: bed with innerspring mattress, chest with mirror, desk with chair and book shelving. An additional occasional chair is placed in each double room.

Town House Apartments. Duke University operates Town House Apartments primarily for graduate and professional school students. Families and other groups are housed in individual apartments if the interests of the University are served. The setting of these apartments provides single graduate students a comfortable, home-like atmosphere free of all aspects of living inherent to residence halls. Each air-conditioned, two-bedroom apartment is furnished for use by three students.

Central Campus Apartments. Duke University is building a 500-unit housing facility which will be known as Central Campus Apartments. Planned for completion on a phased-in basis beginning in early 1974, the complex will provide housing for married graduate and professional school students, single undergraduate and graduate students, and single and married students in nondegree programs related to Allied Health.

For single students efficiencies, one-bedroom and two-bedroom apartments will be fully furnished. The apartments for married students will include a few furnished efficiencies and a number of one, two, and three-bedroom units in which the kitchen, living room, and first bedroom will be basically furnished. These apartments will be furnished and equipped in such a way as to provide economy and convenience to eligible married students while allowing for individuality.

The monthly rental rates for each type of apartment will be lower than those offered on the current housing market.

Off-Campus Housing. The Department of Housing Management maintains lists of rental apartments, rooms and houses provided by Durham property owners or real estate agents who will agree not to discriminate in the rental property because of race, creed, or nationality of a prospective tenant. These lists are available in the department only. The Department of Housing Management will assist any member of the Duke community in seeking suitable off-campus housing; however, off-campus rental properties are not inspected or approved, nor does the University or its agents negotiate with owners for students, faculty, or staff.

Application Procedures. When a student is informed of his acceptance to the Medical School, he will also receive a form on which to indicate his preference for University housing. This form should be returned to the

Medical School where it will be forwarded to the Department of Housing Management. Detailed information on the types of accommodations and application forms will be forwarded to the accepted student. However, if additional information is desired prior to a student's acceptance, please write to the Department of Housing Management, Duke University, Durham, North Carolina 27706.

Dining Facilities. The Medical Center cafeteria serves students and employees. Other dining facilities located near the Medical Center are in the Union Building, with two cafeterias and the Oak Room, and in the Graduate Center, with a cafeteria and coffee lounge. The latter serves sodas and sandwiches from 11:30 a.m. to 11:00 p.m. (Please refer to section on Dining Facilities in the chapter on Financial Information for approximate food costs.)

Services Available

Student Personal Advisory Program. One important objective of Duke University School of Medicine is to promote an informal, cordial student-faculty relationship. All entering students are given an opportunity to request a personal adviser who will be available to the student throughout his undergraduate medical training. Advisers are assigned from a group of faculty members who have volunteered to serve in this capacity.

Student Health Service. In recognition of the unique health needs of medical students whose activities bring them into far greater contact with communicable disease than the average university student, a special health program for medical students has been established. Each freshman will submit prior to entry the standard Duke History and Physical Examination form to be completed by their own physician. This will include urinalysis, hemoglobin, and serology. During orientation week freshmen students will be given an appointment to report to the Student Health Services for baseline immunizations to include smallpox, diphtheria-tetanus booster, polio booster, IPPD tuberculin test, and chest X-ray. The chest X-ray and IPPD will be repeated in the junior year. In the senior year each medical student will receive a complete physical examination including urinalysis, hemoglobin, IPPD, chest X-ray, and smallpox vaccination.

Since these services are in addition to those available through the Student Health Service, a special fee will be required of each medical student to cover the extra cost over the four-year period.

Students receive ambulant care at the University Health Office during regular office hours.

The main components of the Health Service include the Student Health Clinic in the Marshall I. Pickens Rehabilitation Center, located at the corner of Trent Street and Erwin Road, and the Infirmary on the East Campus. For treatment of most illnesses or injuries, students should first contact the Student Health Clinic. Transportation may be made via the campus bus, or emergency transportation can be obtained from the Duke Campus Police or the Durham Ambulance Service.

The facilities of the University Health Services Clinic are available during both regular and summer sessions to all currently enrolled full-time students attending classes on Duke Campus. The facilities of the University Infirmary are available during the regular sessions only from the opening of the University in the fall until Graduation Day in the spring to all currently enrolled full-time students.

The resources of the Duke University Medical Center are available to all Duke students and their spouses and children. Charges for any and all services received from the Medical Center are the responsibility of the student as are the charges for services received from physicians and hospitals not associated with Duke University.

For emergency problems when the University Health Clinic is not open, the emergency room at Duke University Medical Center is available.

The financial responsibility for expenses incurred in the emergency room rest with the student or his parents, though it is anticipated that most, if not all, such services will be covered under the Duke Student Accident and Sickness Insurance Policy. This Duke Student Accident and Sickness Insurance Policy will cover only true emergencies necessitating treatment at the Hospital Emergency Room. The Emergency Room Business Office will assist in filing claims under this and other health insurance policies.

The Student Health Program does not provide health care for spouses and dependent children of married students. There are provisions in the insurance plan, however, for coverage of the married student's family. Pre-existing conditions of dependent spouse and/or children are not covered.



Student Mental Health Service. The Student Mental Health Service is located in the Pickens Rehabilitation Building on Erwin Road. The service provides evaluation and brief counseling and/or treatment for matters ranging from questions about normal growth and development to the most serious psychiatric disorders.

Student Mental Health Service records are maintained separately, and are not a part of any other record system, academic or medical. Contact with the service is strictly confidential.

The Duke Student Accident and Sickness Insurance Policy. The Duke Student Accident and Sickness Insurance Policy is available at a reasonable charge. (The 1973-1974 rate was \$32.90.) The supplemental coverage provides coverage for hospitalization, diagnosis, and treatment on an outpatient basis, emergency room services, and major medical expenses. The policy is more fully described in a brochure sent through the Bursar's Office.

Participation in the supplemental insurance program is on a waiver basis. The University expects all students to be financially responsible for medical expenses above those covered by the University Student Health program through the Duke Student Accident and Sickness Insurance Policy or a student's private policy or personal financial resources. Those who have equivalent medical insurance or who wish to accept the financial responsibility for any medical expenses may waive the Duke Accident and Sickness Insurance Policy by signing a statement to this effect. Each student and/or parent must purchase this student health insurance or sign a waiver before registration is complete.

More detailed description of the Duke Student Health program and the Duke Student Accident and Sickness Insurance Policy will be found in their respective brochures which will be sent to each student.

Vacations and Free Quarters. All students should take note that the Student Health Service does not provide care during quarters for which fees and tuition are not being paid.

The supplemental health insurance plan is designed to complement services normally available to students through the University Student Health Service in order that they may be protected at times when the service does not apply and for accidents and sickness which it does not cover. This plan provides protection twenty-four hours per day during the full twelve-month term of the policy for each student insured. Students are covered on and off the campus, at home, or while traveling between home and school, and during interim vacation periods.

Information concerning the availability of additional health care may be obtained from the Student Health Service. These rules and regulations are those in effect at the time of publication of this document, but are subject to change at a later date.

Student and Professional Organizations

Alpha Omega Alpha. Alpha Omega Alpha Honorary Medical Fraternity was organized nationally in 1902 and the Duke Chapter (North Carolina Alpha) was chartered in 1931. The aims of this society are the promotion of scholarship and research in medical schools, the encouragement of high standards of character and conduct among students and graduates, and the recognition of high attainment in medical science, practice, and related fields. Students who have demonstrated leadership and academic promise of future achievement are elected. Membership is limited to no more than

one-sixth of any class and of these only one-third may be elected in the junior year. Alumni, faculty, and honorary membership may also be conferred upon certain physicians who have distinguished themselves in the various areas of medical teaching, research, and practice.

Davison Society. All medical students are dues-paying members of the Davison Society which is governed by elected officers and class representatives comprising the Davison Council. The Society acts in several capacities by: developing projects, providing student representation on Medical Center and University committees, and organizing extracurricular, educational, and social events for students and faculty.

In the way of community projects, the Davison Society helps sponsor and support the Edgemont Clinic, a free clinic run by medical, nursing, pharmacy, and other students from Duke and UNC; a two-week Durham County junior high school program in sex education; a parallel program in drug education; and various community health education and organizational programs.

The Davison Society functions as the official representative body for Duke medical students, and as such nominates or elects students to serve on all appropriate Medical Center and University committees including MedSAC, MEPAC, Admissions, Curriculum, Judiciary, Directors' Hour, Faculty/Chairman Search, Library, Human Experimentation, and several other committees. Recommendations by students have recently helped institute changes in the grading system, to a honors/pass/fail system with written evaluations; have led to the incorporation of a seven-week "Interterm" before the second year to better prepare students for their clinical rotations; and have resulted in the development of standardized, computerized course evaluation questionnaires which are administered through the Davison Society.

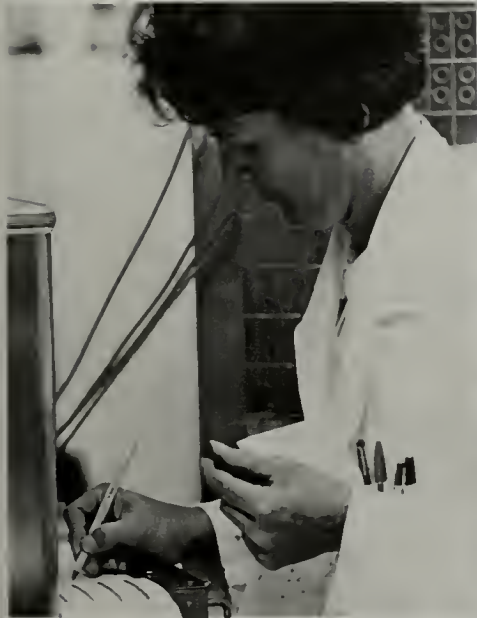
The Society also acts as the local chapter of both the Student American Medical Association (SAMA) and the North Carolina Medical Society (NCMS). Student representatives are appointed to attend the annual meetings of SAMA, NCMS, AMA, Association of American Medical Colleges (AAMC), the Southern Medical Association (SMA), and other national meetings of importance to medical students. Students have been sponsored by the Davison Society to attend recent meetings of the National Board of Medical Examiners, the Congress on Medical Education, the AMA Congress on Medical Ethics, and the Student National Medical Association annual meeting.

Within the student body the Society publishes a student directory and a weekly newsletter. Socially, the Society sponsors the annual student-faculty basketball game, the annual Medical School show, departmental beer and pretzel hours, beer and pizza dinners, and individual class parties and picnics.

The Davison Society is proud to have been recognized nationally as a prototype for student organizations, locally for its degree of community involvement, and within the Medical Center for its instructive contributions.

The Student National Medical Association, Inc. The Student National Medical Association (SNMA) is a national organization comprised of medical students. The organization was established in 1964 and now has chapters at sixty-seven of the American medical schools.

The purposes of the Student National Medical Association are: (1) to create an atmosphere wherein professional excellence and moral principles can find fullest expression, (2) to disseminate information relative to minority



problems within the field of medical education, (3) to take necessary and proper steps to eradicate prejudicial practices in the field of medical education and related areas as these practices appear to be based on race, creed, color, sex, or national origin, (4) to develop workable programs for the implementation of better urban and rural health care, (5) to provide national leadership in the promulgation of legislative policies for the provision of better health care, (6) to sponsor programs for minority youth to encourage their entrance into the health professions, and (7) to raise the levels of black student recruitment, admissions, and retention in schools training health care professionals.

The Engel Society. The Engel Society, established in 1966 as a memorial to Professor Frank L. Engel, is designed to promote intellectual and social interaction between students and faculty. Membership is limited to six junior students and six senior students who have demonstrated an inquisitive nature, interest in their fellow man, and high scholastic ability. Four faculty members are selected annually by members of the society for three-year terms. Six dinner meetings with guest speakers are held each year. Other students may be invited to participate.

Ganglion. The Duke neurosciences society (the Ganglion Society) seeks to promote interest in the neurosciences and to facilitate communications between individuals studying and working in this multidisciplinary field. To accomplish this, the society publishes *The Neurotransmitter*, a weekly bulletin of local events in the neurosciences, both basic and clinical, and sponsors biweekly informal evening discussion sessions featuring both local and visiting scientists and clinicians prominent in one or more areas of the neurosciences. Membership and participation in these activities is open to anyone with an interest in the neurosciences.

Duke University Medical Alumni Association. The Duke Medical Alumni Association currently consists of over 5,000 members including all graduates of the Medical School, past and present faculty, and all past and present house officers of Duke Hospital including those who are not Duke Medical School graduates. Associate membership is available to alumni of other Medical Center programs. A quarterly newsletter is sent to all members each year. Around clusters of five-year classes, November reunions are held annually in Durham. Alumni groups have been organized in several states where luncheon and dinner meetings are held following the American Medical Association, the Southern Medical Association, the North Carolina Medical Society, the American Academy of Pediatrics, and several departmental specialty society meetings.

Officers. President: J. Kempton Jones, M.D., 1946, Chapel Hill, North Carolina; Secretary-Treasurer: Jay M. Arena, M.D., 1932, Durham, North Carolina.

Awards and Prizes

Davison Scholarship. The Davison Scholarship award consisting of \$500 was formerly donated by the late Dean Wilburt C. Davison. The award is now supported by the Davison Club in the memory of Dean Davison and is awarded to enable a medical student to participate in a clinical science elective outside the United States. Any student may apply for the award.

Thomas Jefferson Award. This award, consisting of \$100, a certificate, and a book, recognizes students who make outstanding contributions to the University or to fields which have not been traditionally confined to science and medicine.

Lange Medical Publications Awards. Two seniors selected by participating medical schools for excellence in their work are awarded four books, published by the Lange Medical Publications. The books are selected by the individual recipients.

The Joseph Eldridge Markee Memorial Award In Anatomy. Donated by the friends and family of the late Dr. J. E. Markee, James B. Duke Professor of Anatomy and Chairman of the Anatomy Department from 1943 to 1966, and

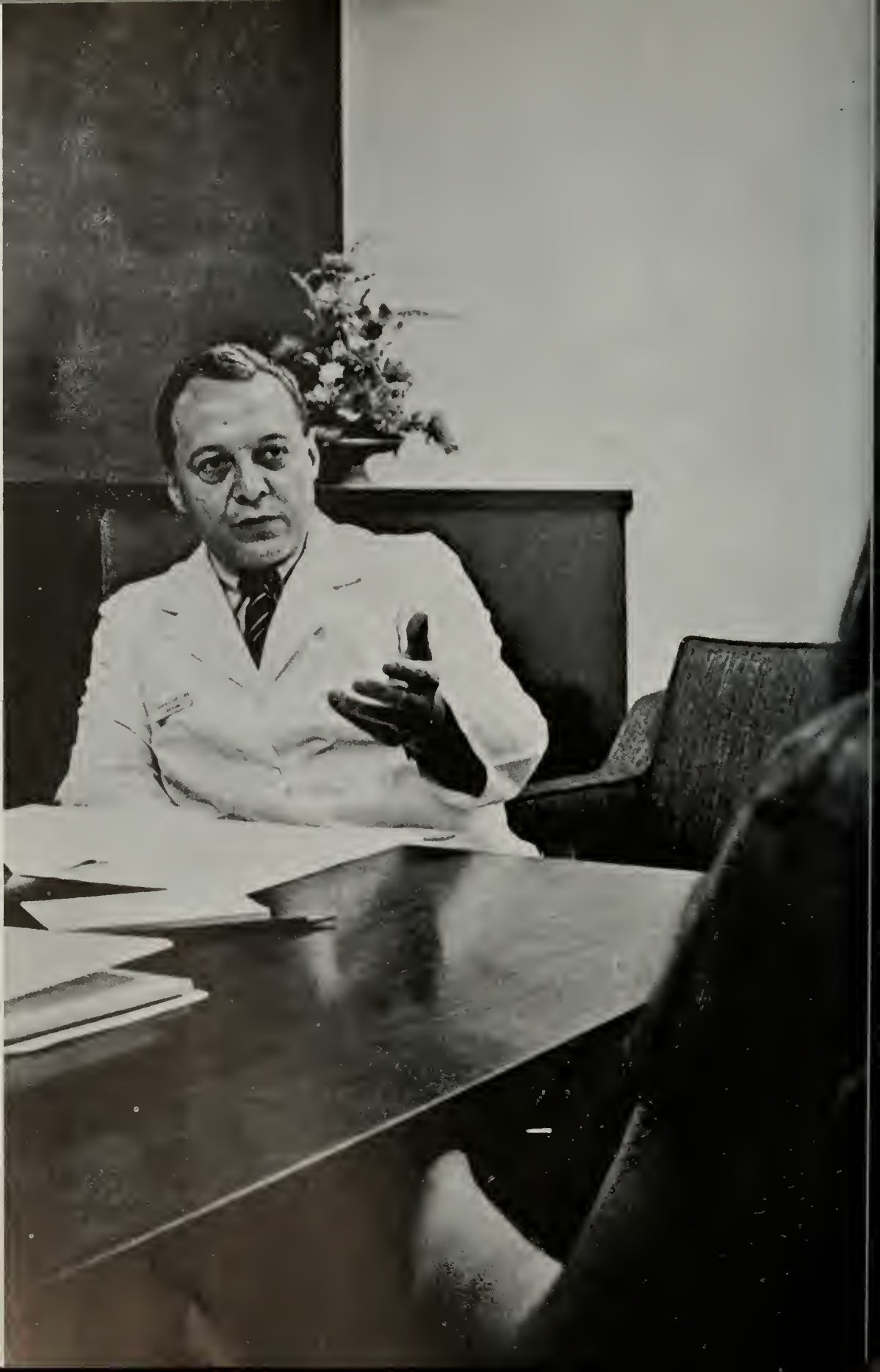
consisting of a certificate, medallion, and cash award of \$200, the award is presented by the Department of Anatomy to the most outstanding student in anatomy during the first year of medical school.

C. V. Mosby Book Award. Each class president is presented a certificate to select a Mosby book not to exceed \$30.

Roche Award. This award is a gift from the Roche Laboratories and is presented to one member of the senior class for outstanding achievement during his career in medical school.

Trent Prize. An annual award of \$100 is given to a Duke medical student for the best essay on any topic in the history of medicine and allied sciences. Mrs. Mary Trent Semans established this award in memory of the late Josiah C. Trent to encourage students to undertake independent work in the history of medicine and to utilize the resources of the Trent Collection.

Upjohn Award. The award consists of \$200 cash and a certificate, which is presented to a Duke medical student for the best essay, considered on a competitive basis, discussing some social, cultural, or economic aspect of health.



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Admission

Admission Procedures

A well-rounded general education is recommended with the choice of subjects beyond those required for admission governed by individual interests. The manner in which the college years are utilized is of greater importance than specific subjects. Premedical students should secure a knowledge of the principles and appreciation of the interrelationship of basic sciences, learn to work independently, observe critically, and analyze rather than store information.

Good study habits, intelligence, character, and integrity are essential qualifications for admission.

Application for Admission. Application forms for the Duke University School of Medicine may be obtained by writing the Committee on Admissions, Box 3710, Duke Hospital, Durham, North Carolina 27710. Prior to August 1, all requests for application materials will be assigned to a mailing list. The materials will be forwarded during the first week in August. The deadline for receipt of completed applications is December 1.

Requirements. Admission to the School of Medicine requires a minimum of 90 semester hours of approved college credit including one year of college English, consisting primarily of expository English composition, one year of inorganic chemistry, one year of organic chemistry, one year of physics, one year of biology and/or zoology, and one year of calculus. All science requirements must be completed not more than seven years prior to entrance. Applicants who have reached the age of thirty prior to matriculation will not be considered.

The Medical College Admission Test, administered by the Medical College Admission Test Office, Association of American Medical Colleges, One Dupont Circle, N. W., Washington, D. C. 20036, is required of all applicants. This test is given in May and October of each year at numerous colleges throughout the United States. Students should consult their premedical advisers and arrange to take this test in May of the year they plan to submit applications for admission.



Selection

Selection is made between September 15 and March 15 for students entering the following September. Data on each candidate are carefully evaluated by the Committee on Admissions. If the distance is not too great, a personal interview will be conducted at Duke for those students with satisfactory credentials. Other candidates will be referred for personal interviews with regional representatives of the Admissions Committee. Those candidates who demonstrate the most promise for exceptional performance in their future practice of medicine are admitted on the basis of merit without regard to race, color, religion, sex, or national origin and are notified as soon as possible whether or not they have been accepted. In order to ensure enrollment, accepted candidates must return a signed agreement and a fifty dollar deposit within three weeks after notification. Inasmuch as admission is offered a considerable period in advance of matriculation, it is provisional upon the successful completion of remaining required premedical college courses.

Transfer

Applicants who have completed two years in most of the American and Canadian medical schools will be considered for transfer only as space permits. Such transfer students are required to complete the second and fourth years of the Duke curriculum. For transfer, completion of Part I of the National Board Examination is required as evidence of satisfactory completion of subjects taught in the first two years of most North American schools.

A limited number of transfer students from foreign medical schools may be admitted each year. Such students should have completed their preclinical training and must complete Part I of the National Board Examination. If space permits, these students will be admitted as members of the sophomore class and rotate in the clinical departments. They will be required to complete the junior and senior years, composed of electives in clinical and preclinical sciences. By attending two summer sessions, a transfer student from a foreign medical school can earn his M.D. degree from Duke University approximately two and one-half years after matriculation.

Transfer application materials must be requested by February 1 of the year of anticipated transfer. The deadline for the receipt of completed applications is March 15 of the same year. Competitive applicants will be sponsored for Part I of the National Board Examinations given in June of that year as part of the evaluation procedure. Upon receipt of the results of this examination, personal interviews will be arranged for those with satisfactory credentials.

Transfers into the freshman or senior years are not permitted.

Advanced Placement

Advanced placement is offered to qualified freshmen students on an optional basis for the following first semester courses: anatomy, biochemistry, genetics, and physiology. Students desiring consideration for advanced placement are required to take examinations in applicable subjects during the first week of medical school. Those who are granted and accept advanced placement



for a specific course are not required to enroll in that course but will be responsible for arranging mutually satisfactory substitutions with the appropriate department chairman.

Students who have been awarded Ph.D. degrees in biomedical or pre-clinical sciences may apply for a three-year program to obtain their M.D. degrees. This program consists of the regular core basic science courses required of all freshmen medical students, core clinical rotations during the second year, followed by senior class clinical electives.

Summary

Three years of college work, twenty-five dollars (\$25) nonrefundable application fee, fifty dollars deposit (\$50) within three weeks of notification of acceptance, and the Medical College Admission Test are required. The number of students in the 1974-1975 freshman class is 114.

Applications for admission must be received between August 1 and December 1, 1974. Students will be notified between November 1, 1974 and March 15, 1975. Freshman classes begin September 2, 1975.

Roster of Regional Representatives of Admissions Committee

Alabama:	Birmingham, Ben V. Branscomb; Selma, Havner H. Parish, Jr.
Alaska:	Anchorage, Milo H. Fritz
Arizona:	Phoenix, Robert H. Barnes; Scottsdale, Boyd Metcalf
Arkansas:	Little Rock, Rosalind Smith Abernathy, E. Clinton Texter, Jr.
California:	Berkeley, H. I. Harvey; Beverly Hills, Ben Kohn; Los Angeles, Douglas F. Smiley; Menlo Park, Gustave Freeman; Palo Alto, James B. Golden; San Bernardino, Irving E. Allen; San Francisco, John E. Cann, R. Gray Patton; Son Moteo, Lester H. Margolis; Santa Monica, George Hayter; West Covina, Jeremiah W. Kerner; West Los Angeles, James L. Scott
Canada:	Montreal, J. E. Gibbons; Ottawa, John B. Armstrong
Colorado:	Denver, John Ray Pryor, Fred W. Schoonmaker
Connecticut:	Hartford, William H. Glass; New Haven, Clarence D. Davis, Saul A. Frankel, Joseph Mignone, Ned M. Shutkin
Florida:	Boca Raton, Eugene L. Horger; Gainesville, Lamar H. Crevasse, Joseph W. Shands, Jr.; Jacksonville, David W. Brooks, Jr.; Lakeland, John Verner, Jr.; Miami, James J. Hutson, David H. Reynolds; South Miami, Stanley J. Cannon; St. Petersburg, David S. Hubbell; Tampa, Richard G. Connor
Georgia:	Atlanta, James C. Crutcher
Germany:	Berlin, Otto H. Gauer
Hawaii:	Honolulu, Richard K. Blaisdell, James G. Harrison, Jr.; Kailua, Stanley Karansky
Idaho:	Boise, William L. Venning; Idaho Falls, Reid H. Anderson
Illinois:	Chicago, James S. Arnold, George H. Gardner, Daniel J. Pachman, Earl N. Solon; Evanston, Donald R. Mundie, Milton Weinberg, Jr.; Geneva, Charles A. Hanson; Monmouth, Kenneth E. Ambrose
Indiana:	Angelo, Norman W. Rausch; Columbus City, John L. Vogel; Indianapolis, Norman H. Bell, John D. Graham
Iowa:	Davenport, Alexander W. Boone, Jr.; Des Moines, Charles W. Latchem
Kansas:	Emporia, Gould C. Garcia; Solino, Roy B. Coffey; Wichita, Thor J. Jager
Kentucky:	Lexington, Kearns R. Thompson; Louisville, Billy Franklin Andrews, George Uhde
Louisiana:	New Orleans, Richard H. Corales, Jr., Harold M. Horack, Richard M. Paddison
Maine:	Portland, E. Charles Kunkle
Maryland:	Baltimore, John T. King, C. Edward Leach; Rockville, Louis Spekter; Towson, William C. Battle
Massachusetts:	Boston, Raymond D. Adams, James H. Currens, Ellison C. Pierce, Jr., Michael Steer, James L. Tullis; Brookline, James H. Austin, Dorothy A. Elias; Springfield, George A. Sotirion
Michigan:	Ann Arbor, George E. Bacon, Donald L. Rucknagel; East Lansing, Norbert Enzer; Grosse Pointe, Robert F. Kandel; Port Huron, William T. Davison

Minnesota: Minneapolis, Lewis W. Wannamaker; Rochester, Richard E. Symmonds
 Missouri: Columbia, John T. Logue; St. Louis, Thomas B. Ferguson, Roman L. Patrick
 Nebraska: Beatrice, R. Brown
 New Hampshire: Honover, George Margolis, R. J. Vanderlinde
 New Jersey: Montclair, Benjamin B. Burrill; New Brunswick, William E. McGough, Bernard A. Rineberg
 New Mexico: Albuquerque, Robert Proper; Artesia, C. Pardue Bunch
 New York: Albany, Stuart Bondurant; Buffalo, Oliver J. Bateman; East Rockaway, Vincent A. Joy; Endicott, Vincent Giordano; Hornell, Gordon Stenhouse; Ithaca, John G. Maines; Lockport, Frank H. Crosby; New York, Jules Hirsch, Seymour R. Kaplan, Michael J. Lepore, Robert S. Porro, Richard A. Ruskin, Leonard H. Schuyler, Robert A. Shimm, Patricia Winchester; Pittsford, Rufus S. Bynum; Rochester, William L. Sutton; Syracuse, Alfred S. Berne, Herbert Lourie, James E. Sheehy
 Ohio: Cincinnati, Murray B. Sheldon, Jr.; Cleveland Heights, Robert B. Kubek; Columbus, Robert J. Atwell, Charles A. Doan, Lucy R. Freedy, George W. Paulson, James V. Warren; Dayton, Stuart R. Ducker; Elyrio, William L. Hassler; Toledo, George F. Alter, William A. Phillips
 Oklahoma: Muskogee, Robert H. Gibbs
 Oregon: Portland, Joseph F. Paquet
 Pennsylvania: Bethlehem, Ralph K. Shields, James G. Whildin; Bryn Mawr, John V. Bldy; Comp Hill, Alfred J. Sherman; Doylestown, Zachary A. Simpson; Harrisburg, Earl S. Moyer; Johnstown, W. Frederick Mayer; Philadelphia, Max W. Fischbach, Alfred M. Sellers; Pittsburgh, H. V. Murdaugh, Jr., Jack D. Myers; Scranton, Louis C. Waller; Williamsport, William R. Brink
 Puerto Rico: Santurce, Kenneth B. Brown, Rafael Hernandez-Saldana
 Rhode Island: Providence, Richard P. Sexton
 South Carolina: Charleston, Edward F. Parker; Columbia, Ben N. Miller, James M. Timmons; Greenville, Raymond C. Ramage
 Tennessee: Chattanooga, Richard Van Fletcher; Knoxville, Alan Solomon; Memphis, William L. Byrne; Nashville, Walter G. Gobbel, Jr., Alexander C. McLeod, Greer Ricketson; Sevanee, Henry T. Kirby-Smith
 Texas: Austin, Francis A. Morris, Jr.; Dallas, Reuben H. Adams, W. Crockett Cheers, Jr., A. James Gill, William Shapiro; Fort Worth, Henry L. Burks; Galveston, R. H. Rigdon; Houston, Elizabeth Balas Powell, H. Grant Taylor; Midland, Dorothy B. Wyvell; San Antonio, Royall M. Calder
 Utah: Salt Lake City, C. Hilmon Castle, Andrew Deiss
 Vermont: Burlington, Edward S. Horton
 Virginia: Richmond, R. Lewis Wright; Waynesboro, Thomas L. Gorsuch
 Washington: Seattle, A. Lawrence Banks, Lois Hale Watts
 West Virginia: Charleston, Harold H. Kuhn
 Wisconsin: Lo Crosse, C. Norman Shealy; Milwaukee, Jack L. Teasley



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Financial Information

Fees and Expenses

Tuition. The following table represents an estimate of a student's necessary expenses in the School of Medicine. The total of these figures suggests a basic minimum budget of approximately \$5,200. Allowances for recreation, travel, clothing, and other miscellaneous items must be added to this estimate with allowances for individual needs and tastes.

Tuition	\$2,900.00
Accident and Sickness Insurance (Subject to change)	33.00
Instruments* (First year only)	225.00
Microscope rental†	135.00
Microscope purchase	500.00
Uniforms	58.00
Annual cost of books: first year	200.00
second year	150.00
third and fourth year	200.00
Lodging (University Housing)	393-617
Board (University Dining Halls): first year	1,212.00
second-fourth year	1,008.00
Student Health Service‡ (First year only)	45.00
Student Government (Davison Society)	15.00
Motor Vehicle Registration	10.00

*Sphygmomanometer, ophthalmoscope, otoscope, and other equipment required of each student must conform to rigid standards.

†The student requiring financial aid is expected to rent a microscope.

‡Mandatory Fee. For details, please refer to Student Health Service.

There are four dates in each academic year when approximately one-quarter of the total tuition becomes payable. These dates apply whether a student is in the first year (2 semesters), or on 8-week terms. The dates for the

1974-1975 academic year are Friday, August 30, 1974, October 25, 1974, January 10, 1975, and March 7, 1975. An additional billing will be made to those who elect to attend the summer terms.

The Office of the Bursar will send bills as a reminder of the exact amount payable to the University. A late fee of \$10.00 will be assessed for any portion of the tuition and other charges that remain unpaid and for which prior arrangements have not been made with the Bursar's Office. In the event of death, or involuntary withdrawal to enter the armed services, refunds will be made on a pro rata basis. In all other cases of withdrawal, students or their parents may elect to have tuition and room and board charges refunded or carried forward as a credit for later study, according to the following schedule:

1. Withdrawal before the beginning of classes: full refund.
2. Withdrawal during the first or second week of classes: 80 percent.
3. Withdrawal during the third, fourth, and fifth week of classes: 60 percent.
4. Withdrawal during the sixth: 20 percent.
5. No refunds after the sixth week.
6. Tuition or other charges paid from grants or loans will be restored to those funds, not refunded or carried forward.

No credit will be given for any term in which the tuition has not been paid, whether the work has been at Duke or elsewhere. A student is not eligible to attend classes or to make use of University facilities if he is in default of payment of funds owed the University. Nonreceipt of a bill does not exonerate the student from payment or from assessment of late fees. It is not advisable for students to attempt outside work to defray their expenses during the academic year. Spouses of medical students desiring employment may secure information from the Medical Center Personnel Office or the Duke University Personnel Office.

Debts. No records are released and no student is considered by the faculty as a candidate for graduation until he has settled with the Bursar for all indebtedness.



Living Accommodations

Housing Fees. The charge for each person in a double room for the academic year is \$393 in the Graduate Center. The limited number of single rooms are reserved for returning students.

The residential fee for Town House Apartments and Duke Modular Homes is \$617 per person for the academic year on the basis of three students to an apartment. Utility charges are not included in these fees. Cost of utilities, except water, will be shared by occupants in these apartments.

Housing fees are subject to change prior to the 1974-1975 academic year. A \$50.00 deposit is required on all reservations.

Rates for Central Campus Apartments were not established at the time of printing of this *Bulletin*. Rates will be quoted to applying students upon request to the Manager of Apartments and Property.

No refund on housing fees is made to students who withdraw from a residential unit after the date of registration, except for those who involuntarily withdraw to enter the armed services or otherwise withdraw from the University. Such refunds will be made in accordance with the University's established schedules.

Dining Facilities. If a student dines on the Duke University campuses, the cost of food for the academic year will average approximately \$1,000-\$1,200. The prices of food are the same in each of the University-operated dining facilities.

Motor Vehicle Registration

Each motor vehicle operated on Duke University campuses by students enrolled in the School of Medicine must be registered at the Medical Center Traffic Office, 350 Bell Building, within five days after operation on the campus begins, and thereafter must display the proper registration decal.

All students must pay an annual fee of \$10.00 for each four-wheeled motor vehicle and \$5.00 for each motorbike or motor scooter registered.*

To register a vehicle, the student must present the following documents: (1) valid state registration for vehicle registered, (2) valid state operator's license, and (3) the name of his automobile liability insurance company.

Parking, traffic, and safety regulations will be given each student at the time of registration of his vehicle(s). Students are expected to abide by these regulations.

Financial Aid

The Duke University School of Medicine makes financial assistance available to accepted students who, due to economic circumstances, could not otherwise attend the University. The school recognizes, however, the responsibility of the individual and that of his or her family to provide funds to achieve the objective of a medical education. Thus, the school does not consider that a parent has discharged the full financial obligation for the continuing education of his son or daughter upon the latter's completion of the undergraduate degree.

Financial assistance is available in a combined form of scholarships and loans, and all awards are made on the basis of demonstrated need.

*This fee is subject to change by the beginning of the fall semester, 1974-1975.

Financial Assistance to Incoming Freshmen. When the medical school applicant receives a letter of acceptance into Duke University School of Medicine, a financial aid application is included if the student has indicated an interest in assistance on his application for admission. The economic circumstances of the student have no bearing on whether or not the student is accepted into the Medical School.

The student requesting financial aid is expected to work during the summer preceding entrance into medical school saving part of his earnings to be used toward his first-year expenses.

The student's need must be established. Before an award can be made the Office of Financial Aid requires the Duke University application for financial aid *and* a computation from the GAPS FAS application.

Applications for aid received in the fall will be reviewed in December, and the applicant will be informed of a decision in late December. Applications received after December will be processed as received.

Financial Assistance to Upperclassmen. Upperclassmen seeking financial assistance for the first time should consult with the Coordinator of Financial Aid. Should a medical student experience unforeseen economic difficulties at any time while in school, he or she may seek assistance through the Coordinator of Financial Aid.

Fellowships and Scholarships. The following fellowships and scholarships are available to students.

The Avalon Foundation Scholarships are nonrefundable, granted on the basis of financial need and scholastic attainment.

The Virginia H. Baxter Memorial Scholarship provides \$1,000 automatically renewable for four years to a financially needy Duke athlete who enters the School of Medicine.

The Mary Duke Biddle Foundation Scholarships, which may pay full tuition, are awarded to academically distinguished medical students who need financial assistance.

The Germain Bernard Scholarship is granted on the basis of financial need.

The Thomas C. Bost Foundation Scholarships may pay full tuition, and are awarded on the basis of need.

The James L. Clark Memorial Fund provides scholarship assistance on a limited basis to a needy medical student.

The C. T. Council Scholarship is granted on the basis of financial need.

The Duke Hospital Medical Auxiliary Scholarship provides full tuition and fees for four years contingent upon academic good standing and financial need.

The Duke University Alumni Scholarship provides \$1,000 automatically renewable for four years to a student demonstrating financial need.

The William F. Franck Memorial Scholarship is awarded to a financially needy student.

The B. Everett Jordan Medical Scholarship is awarded to a financially needy student.

The Dr. John Haden Lane Memorial Scholarship in the amount of tuition is renewable for four years providing the student remains in good academic standing and demonstrates financial need.

The Medical School Faculty Wives Scholarship provides tuition assistance for worthy medical students who are residents of North Carolina.

The State of North Carolina has set up a tuition remission fund (up to

\$1,500 per year), which is available on the basis of need to residents of North Carolina who are in good academic standing.

The Physical Medicine Scholarship provides up to full tuition for needy students interested in rehabilitative medicine.

A Slane Family Scholarship is contributed annually to assist a needy medical student. A preference is for, but not limited to, a North Carolinian.

The Sigmund Sternberger Scholarships are awarded in the amount of \$1,000 each to five medical students every year. Entering freshmen recipients receive the award for four years. Upperclassmen receive one year awards. Preference is given to North Carolina residents who intend to remain in the state to practice medicine.

The Charles Alva Strickland Memorial Fund Scholarships cover full tuition costs and are renewed each year on the basis of merit and need. The selection of the recipient is made by a committee of the Trust Department of Wachovia Bank and Trust Co.

The Francis and Elizabeth Swett Scholarships are awarded for a period of one year to entering students on the basis of merit and financial need and are renewable if funds permit, need exists, and academic excellence is maintained.

U. S. Public Health Service Health Professions Scholarships with a maximum of \$3,500 are available to United States citizens who cannot pursue the required studies without this aid. Demonstrated financial need is required.

The Dr. Hillory M. Wilder Scholarship Fund covers full tuition for students for the entire four years of undergraduate medical education and is awarded on the basis of merit and need.

The Sue Eggleston Woodward Scholarship Fund assists students on a limited basis who demonstrate need.

Loans. University loans are available under the specific restrictions of the loan funds and are awarded on the basis of financial need. Some of them are: W. K. Kellogg Foundation Loan Fund, Seaborn L. Hardman Loan Fund, Medical Freshman Tuition Loan, Scott Loan Fund, Charles W. Banner Loan Fund, Albert Anderson Loan Fund, and W. N. Reynolds Loan Fund.

The Robert Wood Johnson Foundation Student Aid Program provides loans under specific restrictions for medical students. Demonstrated need is required.

U. S. Public Health Service Health Professions loans are available to United States citizens on the basis of demonstrated financial need.

The Francis and Elizabeth Swett Loan Fund is an emergency loan available in small amounts to any medical student on a no-interest basis for a short period of time.

Deferred Tuition Loans in the amount of \$2,000 per year are available upon request.

Federally insured guaranteed loans up to \$2,500 are available to full-time students at Duke University, an approved lender.

Additional information may be obtained by writing Mrs. Nell Marshall, Coordinator of Financial Aid, Duke University Medical Center, Durham, North Carolina 27710.



6

Courses of Instruction*

Anatomy

Professor: J. David Robertson, M.D. (Harvard, 1945), Ph.D. (Massachusetts Inst. of Tech., 1952), *Chairman*.

Professors: John W. Everett, Ph.D. (Yale, 1932); Montrose J. Moses, Ph.D. (Columbia, 1949); Talmage L. Peele, M.D. (Duke, 1934).

Associate Professors: Sheila J. Counce, Ph.D. (Edinburgh, 1954); Kenneth L. Duke, Ph.D. (Duke, 1940); William Longley, Ph.D. (London, 1963); Michael K. Reedy, M.D. (Washington, 1962).

Assistant Professors: Mark R. Adelman, Ph.D. (Chicago, 1969); Frank H. Bassett, III, M.D. (Louisville, 1957); Jan A. Bergeron, V.M.D. (Pennsylvania, 1966); Charles A. Blake, Ph.D. (California at Los Angeles, 1972); Matthew Cartmill, Ph.D. (Chicago, 1970); Joseph M. Corless, M.D., Ph.D. (Duke, 1972); Harold P. Erickson, Ph.D. (Johns Hopkins, 1968); William C. Hall, Ph.D. (Duke, 1967); William L. Hylander, D.D.S. (Illinois, 1963), Ph.D. (Chicago, 1972); Kurt E. Johnson, Ph.D. (Yale, 1970); Richard F. Kay, Ph.D. (Yale, 1973); M. Stephen Mahaley, Jr., M.D., Ph.D. (Duke, 1959); Timothy L. Strickler, Ph.D. (Chicago, 1973); E. Lee Tyrey, Ph.D. (Illinois, 1969).

Associates: Arthur C. Chandler, Jr., M.D. (Duke, 1959); Jane S. Richardson, M.A. (Harvard, 1966).

Lecturers: Irving T. Diamond, Ph.D. (Chicago, 1953); Isabelle R. Faeder, Ph.D. (Cornell, 1968).

Senior Research Associate: Juan A. Vergara, M.D.

Research Associates: Joseph M. Costello, Ph.D.; L. Hunter Elrod, M.A.; William H. Fletcher, Ph.D.; Janet A. Hall, Ph.D.; E. Mimi Jakoi, Ph.D.; Laura Tres, Ph.D.

Required Course

ANA-200, required of all first year students during the first eighteen weeks of Term 1, consists of approximately 100 hours in gross anatomy, 100 hours in microanatomy, and 56 hours in neuroanatomy. The first eight weeks are devoted to gross anatomy of the human body, thirteen weeks to histology, and three weeks to neuroanatomy. All of the instruction is designed to be informal and individualized. The general principles and func-

* An asterisk placed before the course number indicates that the course is also offered in the Graduate School.

tional viewpoint of living anatomy are emphasized and, whenever possible, fresh tissues and living cells are used.

In the gross anatomy laboratory, students dissect the entire human body except the brain. Formal classroom lectures relate structures of the human body to their developmental and phylogenetic antecedents and the clinical significance of anatomical facts. Informal lectures are presented to small groups. Filmed lectures and prosections are available to students for laboratory and library study.

In microscopic anatomy students are introduced to the histology, cytology, and cell biology of the major tissues of the human body. This will include an introduction to light and electron microscopy, X-ray diffraction, and polarization optics as applied to structural organization in various tissues and organs. Biochemical, biophysical, and genetic cytology as well as muscle and membrane structure will be presented in detail.

Neuroanatomy and neurophysiology are taught concurrently to correlate these fields. Patients will be presented by faculty members in clinical neurology and neurosurgery. The major portion of the course is organized by systems, e.g., sensory, visual, auditory, olfactory, and motor including cerebellar, autonomic, hypothalamic, and limbic mechanisms. The microscopic structures of nerve cells, fibers, glia cells, and effector-receptor activities of spinal and cranial nerves will be studied. Two lectures in neuro-radiology and two in electron microscopic studies of nerve tissues are included in the course.

Electives

ANA-206 (B). Anatomy of Back and Extremities. Complete dissection of back and extremities, including pectoral and pelvic girdles. Visual aids will be used extensively. Course planned for orthopaedics, general practice, or neurosurgery. Terms: 3 or summer. Weight: 3. *Bassett*

***ANA-208 (B). Anatomy of the Trunk.** Emphasis will be on the anatomy of the thoracic, abdominal and pelvic organs, and their blood supply, innervations and relationships. The dissections will be augmented by use of prosections, motion pictures, and prerecorded TV presentations. Course planned for general practitioners, specialists in surgery and internal medicine. Term: summer. Weight: 2. *Duke*

***ANA-215 (B). Contractile Processes.** Cellular and molecular bases of activity in cilia and skeletal, cardiac and smooth muscle; submicroscopic structure and behavior of muscle; electrical and ionic properties of muscle membranes; the problem of electro-mechanical coupling; mechanics and thermodynamics of muscular contraction; biochemical energies of contraction; modern methods and problems in contractility research. Terms: 1 and 2. Weight: 3. *Jobsis, Johnson, Anderson, and Reedy*

ANA-224 (B). Tutorial in Gross Anatomy. A detailed review of selected regions of the human body in the context of the "core" gross anatomy sequence. Student will plan, with staff, prosections, special presentations, etc. Students will elect to study one or more selected regions, in consultation with the staff. Terms: 1 and/or 2. Weight: 1-5. *Hylander and Staff*

***ANA-231 (B). Human Evolution.** Evolutionary biology of the primates. Anatomical and behavioral adaptations of fossil and living primate population including *Homo sapiens*. Terms: 3 and 4. Weight: 3. *Cartmill*

ANA-256 (B). Surgical Neuroanatomy. This course will utilize gross brain and spinal cord specimens, the skull, angiograms, X-rays, pneumoencephal-

ograms, and myelograms to correlate neurosurgical diseases and procedures with regional nuclei and tracts of the nervous system. Terms: 1, 2, 3, or 4. Weight: 1. *Mahaley*

ANA-260 (B). Developmental Systemic Anatomy. A survey of all major systems or concentration on selected ones will be presented, depending on interests of students. Dated rat embryos, supplemented by primate material, will be used to follow the development of organ systems. Term: 3. Weight: 3. *Duke*

***ANA-276 (B). Comparative Neurology and Psychology.** The general problem of reconstructing the evolution of the brain and behavior on the basis of information derived from living species will be considered. "Nerve net" organizations will be contrasted with the organization of ganglionated nervous systems. Brains of different species, particularly in vertebrates, will be correlated with variations in the behavioral requirements of different habitats and with differences in genetic line of descent. Terms: 3 and 4. Weight: 3. *Hall*

***ANA-280 (B). Molecular Basis of Anatomy.** Lectures and conferences on the molecular structure of biological macromolecules and their organized aggregates such as are found in viruses, muscle, membranes, and other intracellular organelles, with emphasis on the results of electron microscopy, X-ray diffraction, and optical analysis. Terms: 3 and 4. Weight: 3. *Longley, Adelman, Erickson, Moses, Reedy, and Robertson*

***ANA-291 (B). Special Topics in Nerve Ultrastructure.** Each student will choose a special topic (e.g. ultrastructure of synapses, organs of special sense, myelin, motor end plates, nerve membranes, etc.) Each student will pursue his topic in the library during the first half of the semester with guidance from the instructor and prepare a detailed paper. The second half of the semester will be devoted to seminar presentations and discussions of the selected topics. Terms: 1 and 2. Weight: 2. *Robertson*

***ANA-340 (B). Tutorial in Advanced Anatomy.** Selected topics will be chosen for intensive reading and discussion. Topics may be chosen related to basic problems of cytology, growth and development, biophysics, endocrinological control, neuroanatomy, physiological differentiation, and evolutionary origins of functional micro-systems. Terms: every term. Weight: 1-3. *Anatomy Faculty*

***ANA-344 (B). Advanced Neuroanatomy of Sensory and Motor Mechanisms.** The course will involve consideration of classic and modern concepts of somatic and special sensory systems and of somatic and visceral motor systems. Clinical correlations of basic neuroanatomy will be included. Term: 4. Weight: 3. *Peele*

***ANA-354 (B). Research Techniques in Anatomy.** A preceptorial course in various research methods in anatomy. An interested student might engage in research in physical anthropology, electron microscopy, developmental biology, fetal physiology, or stereotactic approaches to neuroendocrinology and neuroanatomy. Approval of the student by the faculty is required. Terms: every term. Weight: 4-8. *Anatomy Faculty*

ANA-390 (B). Anatomy of the Fetus. The chief objective will be to complete a dissection of the human fetus. Emphasis will be placed on comparing fetal and adult anatomical systems and relationships. Term: 4. Weight: 2. *Duke*

***ANA-411(B). Molecular and Cellular Bases of Development and Differentiation.** This course is the lecture and seminar series of the Development and Differentiation Study Program, DDS-201(B), without the laboratory of that course. See DDS-201(B) for the objectives and description. Terms: 1 and 2. Weight: 3-4. *McCarty, Counce, Padilla, Harris, Sommer, Moses, Kaufman, Johnson, and Vanaman*

ANA-414(B). The Human Embryo. The first eight weeks of development will be considered in detail, including fertilization, implantation, formation and function of embryonic membranes and placenta, and establishment of organ systems. Emphasis will be placed on distinctive features of human embryogenesis, and on causes, prompt identification, and treatment of congenital defects. Discussions of newborn evaluation and parent counseling will be included. Term: 4. Weight: 2. *Counce and Pounds*

***ANA-418(B). Reproductive Biology.** An in-depth study of male and female reproductive processes including neuroendocrine, pituitary and gonadal control mechanisms, and the physiology of pregnancy and parturition. Also listed as PHS-418(B). Terms: 3 and 4. Weight: 2. *Anderson, Everett, Schomberg, Blake, and Tyrey*

Anesthesiology

Professor: Merel H. Harmel, M.D. (Johns Hopkins, 1943), *Chairman.*

Professors: Peter B. Bennett, Ph.D. (Univ. of Southampton, England, 1964); David A. Davis, M.D. (Vanderbilt, 1941); Sara J. Dent, M.D. (Med. Coll. of South Carolina, 1945); Kenneth D. Hall, M.D. (Duke, 1953).

Associate Professors: G. Douglas Blenkarn, M.D. (Univ. of Toronto, 1958); William J. Murray, M.D. (North Carolina, 1962); Bruno J. Urban, M.D. (Albertus Magnus, Koeln, Germany, 1960); Vartan Vartanian, M.D. (Cluj Univ. Medical School, Rumania, 1951).

Associate Clinical Professor: M. Bourgeois-Gavardin, M.D. (Univ. of Paris, 1954), (Duke, 1955).

Assistant Professors: J. Howard Brown, M.D. (Boston Univ., 1967); A. F. David Cole, M.D. (Univ. of Toronto, 1962); Luther C. Hollandsworth, M.D. (Bowman Gray, 1951); John A. Jarrell, Jr., M.D. (Johns Hopkins, 1949); Charles F. Lanning, M.D. (Kansas, 1969); Ching-muh Lee, M.D. (National Taiwan Univ., Taiwan, 1966); Ingeborg H. Talton, M.D. (Giessen Medical School, Germany, 1952).

Assistant Clinical Professor: David C. Daw, M.D. (Univ. of Western Australia, 1962).

Electives

ANE-250(C). Clinical Acute Respiratory Physiology. Work in Anesthesiology Blood Gas Laboratory learning theory and practice of oxygen electrode, carbon dioxide electrode and pH meter, and ancillary techniques, and in Recovery Room and Acute Care Unit. Study of ventilator problems. Every term. Weight: 2. *Hall, Blenkarn, Gilbert, Lee, Mr. Anderson, and Ms. Cooke*

ANE-252(C). Clinical Anesthesiology II. Introduction to theory and practice of clinical surgical anesthesia, diagnostic and therapeutic nerve blocks, and cardiopulmonary resuscitation. Students will review physiology and pharmacology of anesthesia and perform general and regional anesthesia and will assist in post anesthetic respiratory care. Course will be tailored to individual student's interests. Every term. Weight: 2-8. *Harmel and Staff*

ANE-253(C). Anesthesiology Research. Course teaches techniques utilized in clinical and laboratory research in anesthesiology. In collaboration with the faculty, the student will work on a research project related to the physiology and pharmacology of anesthetic practice. A wide range of facilities is available for the measurement of respiratory and circulatory parameters, both in animals and in man. Every term. Weight: 8. *Harmel and Staff*

Biochemistry

Professor: Robert L. Hill, Ph.D. (Kansas, 1954), Chairmon.

Professors: Mary L. C. Bernheim, Ph.D. (Cambridge, England, 1928); Irwin Fridovich, Ph.D. (Duke, 1955); Samson R. Gross, Ph.D. (Columbia, 1953); Walter R. Guild, Ph.D. (Yale, 1951); James B. Duke Professor Philip Handler,* Ph.D. (Illinois, 1939); Henry Kamin, Ph.D. (Duke, 1948); Norman Kirshner, Ph.D. (Pennsylvania State, 1952); Kenneth S. McCarty, Ph.D. (Columbia, 1957); James B. Duke Professor Charles Tanford, Ph.D. (Princeton, 1947).

Associate Professors: Stanley H. Appel, M.D. (Columbia, 1960); Ronald C. Greene, Ph.D. (California Inst. of Tech., 1954); Jerome S. Harris, M.D. (Harvard, 1933); Bernard Kaufman, Ph.D. (Indiana, 1961); Sung-Hou Kim, Ph.D. (Pittsburgh, 1966); William S. Lynn, Jr., M.D. (Columbia, 1946); K. V. Rajagopalan, Ph.D. (Univ. of Madras, 1957); Harvey J. Sage, Ph.D. (Yale, 1958); Robert E. Webster, Ph.D. (Duke, 1965).

Assistant Professors: Robert M. Bell, Ph.D. (California, 1970); Robert L. Habig, Ph.D. (Purdue, 1966); Per-Otto Hagen, F.H.W.C. (Watt Univ., Edinburgh, Scotland, 1961); Dwight H. Hall, Ph.D. (Purdue, 1967); Philip D. Harriman, Ph.D. (California at Berkeley, 1964); William N. Kelley, M.D. (Emory, 1963); Nicholas M. Kredich, M.D. (Michigan, 1962); Robert Lefkowitz, M.D. (Columbia, 1966); Patrick A. McKee, M.D. (Oklahoma, 1962); Jacqueline A. Reynolds, Ph.D. (Washington Univ., 1963); David C. Richardson, Ph.D. (Massachusetts Inst. of Tech., 1967); Lewis M. Siegel, Ph.D. (Johns Hopkins, 1965); J. Bolling Sullivan, Ph.D. (Texas, 1966); Robert W. Wheat, Ph.D. (Washington, 1965).

Associates: John A. Bittikofer, Ph.D. (Purdue, 1971); Joseph Bonaventura, Ph.D. (Texas, 1968); Joe McCord, Ph.D. (Duke, 1970); Yasuhiko Nozaki, Ph.D. (Univ. of Tokyo, 1945); Howard Steinman, Ph.D. (Yale, 1970).

Research Associates: Judith Andersen, M.D.; Anne Ball, Ph.D.; Edward Baptist, Ph.D.; Karl Beam, Ph.D.; William Beranek, Jr., Ph.D.; Sambhunath Bhattacharyya, Ph.D.; Mark Caron, Ph.D.; Michael Crech, Ph.D.; Margaret Haberland, Ph.D.; Carole Hall, Ph.D.; James S. V. Hunter, Ph.D.; Richard F. Jones, Ph.D.; Shio Makino, Ph.D.; V. R. Naik, Ph.D.; Michael Passero, M.D.; R. Premakumar, Ph.D.; S. D. Ravindranath, Ph.D.; Neal Robinson, Ph.D.; Mary Rose, Ph.D.; Martin Schwyzer, Ph.D.; William L. Stone, Ph.D.; Joel L. Sussman, Ph.D.; Stephen Turner, Ph.D.; F. J. Yost, Ph.D.

*On leave of absence.

Required Courses

BCH-200—the “core” course given to all freshman medical students during a period of eighteen weeks in the first term—emphasizes the relationship between structure and function of the major classes of macromolecules in living systems including proteins, carbohydrates, lipids, and nucleic acids. The metabolic interrelationships and control mechanisms are discussed as well as the biochemical basis of human disease. An introduction to the biochemical basis of human disease is presented in a series of biochemical-clinical correlation lectures on such diseases as sickle-cell anemia, the glycogen storage diseases, gout, phenylketonuria, galactosemia, diabetes, and neoplasia.

BCH-204—the required course in genetics for all first year students—is given during fourteen weeks of the first term. The course emphasizes fundamental properties of gene function, recombination, selection, organization, and structure. Human and medical genetics are emphasized to provide basic concepts necessary for understanding the origin and consequences of genetic variability. Approximately one-third of the lectures illustrate basic genetic problems.

Students with previous formal training in genetic principles have the option of presenting a paper instead of taking the regular examinations. However, they are encouraged to attend clinical presentations inasmuch as new data are provided.

Electives

***BCH-216(B). Molecular Genetics.** An advanced course on genetic mechanisms and their relationship to nucleic acids. (Listed also in *Graduate School Bulletin* as Genetics 216). Terms: 3 and 4. Weight: 3. *Guild and Others of the University Program in Genetics*

***BCH-222(B). The Structure of Biological Macromolecules.** Introduction to the techniques of structure determination by X-ray crystallography and study of some macromolecules whose three-dimensional structures have been determined at high resolution. Terms: 3 and 4. Weight: 2. *Richardson and Kim*

BCH-276(B). Comparative and Evolutionary Biochemistry. Lectures and discussion of the origin of life, evolution of the genetic code, mutation and protein polymorphism, natural selection and protein structure, and comparison of homologous proteins and nucleic acids. Laboratory work involves the purification and characterization of homologous proteins from fish and invertebrates. Techniques used include salt fractionation, electrophoresis, ion-exchange and molecular exclusion chromatography, fingerprinting, molecular weight determination, amino acid composition, and other related approaches. Term: summer. Weight: 6 per 5 weeks. *Sullivan*

***BCH-282(B). Experimental Genetics.** A series of laboratory exercises and discussions on the molecular mechanisms of mutation, recombination, replication, transcription, and translation of the genetic material. Terms: 3 and 4. Weight: 2. *Harriman and Others of the University Program*

BCH-286(B). Current Topics in Immunochemistry. This course deals with the structure-function specificity of antibodies. Immunogenicity and tolerance are discussed, with special emphasis on current theories of the diversity and synthesis of antibody molecules. Terms: 3 and 4. Weight: 2. *Sage*

BCH-288(B). The Carbohydrates and Lipids of Biological Systems. The subject will be considered in the following two general categories: The first is the relationship between structure and function particularly, (a) cell surface carbohydrates as antigenic determinants and their relationship to viral and carcinogen transformation (b) connective tissue mucopolysaccharides (c) structural features of lipids and phase transitions. The second category considered is biosynthesis and catabolism. Terms: 3 and 4. Weight: 2. *Kaufman*

BCH-293(B). Macromolecules. The structure of biological macromolecules and their relations to biological functions. The emphasis is on proteins and enzymes. Terms: 1 and 2. Weight: 4. *Tanford and Hill*

***BCH-294(B). Nucleic Acids and Macromolecular Synthesis.** Physical properties of nucleic acids in terms of covalent structure, helix, base pairing, helix-coil transitions, as well as properties that influence fractionation by techniques of column-fractionation, velocity and equilibrium centrifugation, etc. are considered in relation to biological function. Protein-nucleic acid interactions, as well as damage, repair, and mechanisms of synthesis will be reviewed. Mechanisms of RNA transcription and enzymatic alterations of preformed macromolecular structures will be illustrated by recent examples. Protein synthesis and polypeptide bond formation is considered in terms of initiation, decoding, translocation, ribosomes, termination, and release. Terms: 3 and 4. Weight: 3. *McCarty and Staff*

***BCH-295(B). Enzyme Mechanisms.** A consideration of the theoretical and practical aspects of the isolation and assay of enzymes, kinetic des-

cription of enzyme catalysis, allostery, investigation of binding and catalytic sites, classification of enzymes and mechanisms of enzyme action. Terms: 1 and 2. Weight: 3. *Fridovich and Rajagopalan*

***BCH-297(B). Intermediary Metabolism.** The synthesis and degradation of carbohydrates, lipids, proteins, and nucleic acids will be discussed in detail with emphasis on energy transformation and metabolic interrelationships. Terms: 1 and 2. Weight: 3. *Kirshner and Siegel*

BCH-298(B). Regulation of Cellular Metabolism. Emphasis is placed on the metabolic hormonal and genetic regulation of the overall metabolism of the cell. Terms: 3 and 4. Weight: 2. *Greene and Staff*

BCH-299(B). Nutrition. This course will examine the experimental basis for the identification and quantitation of requirements for calories, macronutrients, and micronutrients (vitamins and minerals). It will deal with the biochemistry of nutrition, with the assessment of nutriture, and with the biological effects of deficiency or excess of nutrients. The course will seek to define optimal nutriture, and will search for the factual bases (if they exist) for commonly held beliefs on the nutrition of individuals and populations. The course will consist of informal lectures and, if possible, student seminars. Term: 2. Weight: 2. *Kamin*

***BCH-302(B). Neurochemistry.** Biochemical aspects of structure and function of nerves, specialized aspects of carbohydrates, lipids, proteins, myelin, neurotubules, neurofilaments, transmitters, receptors, and nerve-muscle relationship. Terms: 3 and 4. Weight: 3. *Kirshner, Appel, Kaufman, Lefkowitz, and Vanaman*

***BCH-351(B). Genetics Seminar.** Required of all students specializing in genetics. Terms: 1 and 2. Weight: 1. *Gross and Others of the University Program in Genetics*

***BCH-352(B). Genetics Seminar.** Required of all students specializing in genetics. Terms: 3 and 4. Weight: 1. *Gross and Others of the University Program in Genetics*

BCH-355(B). Research in Genetics. In a limited number of cases, a student will be permitted to participate in the research program of a faculty member. Acceptance is by individual arrangement with the proposed faculty preceptor. Terms: 1 and 2. Weight: 1-8 per term. *Biochemistry Faculty*

BCH-356(B). Research in Genetics. In a limited number of cases, a student will be permitted to participate in the research program of a faculty member. Acceptance is by individual arrangement with the proposed faculty preceptor. Terms: 3 and 4 or summer. Weight: 1-8 per term. *Biochemistry Faculty*

BCH-357(B). Research in Biochemistry. In a limited number of cases, a student will be permitted to participate in the research program of a faculty member. Acceptance is by individual arrangement with the proposed faculty preceptor. Terms: 1 and 2. Weight: 1-8 per term. *Biochemistry Faculty*

BCH-358(B). Research in Biochemistry. In a limited number of cases, a student will be permitted to participate in the research program of a faculty member. Acceptance is by individual arrangement with the proposed faculty preceptor. Terms: 3 and 4 or summer. Weight: 1-8 per term. *Biochemistry Faculty*

BCH-360(B). Clinical Chemistry Laboratory. Medical students may participate in the program of Clinical Chemistry Laboratory on a tutorial basis. Stu-

dent must receive the permission of the instructor. Terms: 1, 2, 3, or 4. Weight: 4. *Habig*

***BCH-395(B). Biochemical Pharmacology.** Emphasis on mechanism of action of drugs in the areas of (1) metabolism and toxicology; (2) antibiotics; (3) steroids; (4) antimetabolites and oncolytic agents; (5) embryology and development; (6) hematopoietic system and porphyrins; (7) lipids and carbohydrates; (8) membrane structure and function; (9) ground substance (mesenchyme). Lectures will be selected from the above areas and will correlate the material in terms of clinical significance. (See also *PHS-395B.) Terms: 1 and 2. Weight: 1 per 8 weeks. *Lack, Posner, Elford, Kirshner, Kamin, Hitchings, Elion, Welch, Appel, Rosse, and Nichol*

***BHC-411(B). Molecular and Cellular Bases of Development and Differentiation.** This course is the lecture and seminar series of the Development and Differentiation Study Program, DDS-201(B), without the laboratory of that course. See DDS-201(B) for the objectives and description. Terms: 1 and 2. Weight: 3-4. *McCarty, Counce, Padilla, Harris, Sommer, Moses, Kaufman, Johnson, and Vanaman*

Community Health Sciences

Professor: E. Harvey Estes, Jr., M.D. (Emory, 1947), Chairman

Professors: Jay M. Arena, M.D. (Duke, 1932); Thomas E. Frothingham, M.D. (Harvard, 1951); Leonard J. Goldwater, M.D. (New York Univ., 1928); William R. Harlan, M.D. (Med. Coll. of Virginia, 1955); M. Dean Nefzger, Ph.D. (Iowa, 1955); Eva J. Salber, M.D. (Cape Town, 1955); Max A. Woodbury, Ph.D. (Michigan, 1948).

Associate Professors: Gert H. Brieger, M.D. (California at Los Angeles, 1957), Ph.D. (Johns Hopkins, 1968); Arthur C. Christakos, M.D. (South Carolina, 1955); William E. Hammond, Ph.D. (Duke, 1967); Siegfried H. Heyden,* M.D. (Univ. of Berlin, 1951); Patrick D. Kenan, M.D. (Duke, 1959); William O'Fallon, Ph.D. (North Carolina, 1965).

Assistant Professors: Collin F. Baker, Jr., M.D. (Vanderbilt, 1943); Reginald D. Carter, Ph.D. (Bowman Gray, 1970); William P. Cleveland, Ph.D. (Wisconsin, 1972); Byron K. Cole, M.D. (Cincinnati, 1960); Frank C. Dorsey, Ph.D. (Duke, 1971); Saleh A. Fetouh, M.D. (Cairo, 1962); Daniel T. Gianturco, M.D. (Buffalo, 1960); Lyndon K. Jordan, M.D. (Duke, 1961); J. Matthews, M.P.H. (North Carolina, 1967); John B. Nowlin, M.D. (Duke, 1959); W. D. Poe, M.D. (Bowman Gray, 1943); Lois A. Pounds, M.D. (Pittsburgh, 1965); Jesse E. Roberts, M.D. (Louisiana State, 1961); W. J. Kenneth Rockwell, M.D. (Duke, 1961); Marvin A. Schilder, B.S. (Baruch School of Business, 1964); Eugene S. Schneller, Ph.D. (New York Univ., 1972); Richard C. Stuelkel, M.D. (Iowa, 1957); Thomas T. Thompson, M.D. (Med. Coll. of Virginia, 1964); Ruby L. Wilson, B.S.N. Ed. (Pittsburgh School of Nursing, 1954).

Associates: William L. Beery, M.P.H. (North Carolina, 1973); Robert C. Bonhag, D.M.D. (Fairleigh Dickinson, 1968), M.H.A. (North Carolina State, 1973); Shirley Callahan, M.P.H. (North Carolina, 1958); Ron W. Davis, Ed.D. (Columbia, 1952); Jonathan Dranov, M.D. (Pennsylvania, 1969); Michael Hamilton, M.D. (Rochester, 1964); Albert E. Hathaway, M.D. (Hahnemann Med. Coll., 1945); Carol C. Hogue, B.S.N. (Duke, 1956); Gerard Musante, Ph.D. (Tennessee 1971); Dorothy E. Naumann, M.D. (Syracuse, 1940); Sigrid J. Nelius, M.D. (Ludwig Maximilian, 1949); James O'Rourke, M.D. (Kentucky, 1966); R. A. Rosati, M.D. (Duke, 1967); Catherine M. Severns, R.N.P. (Yale, 1971); Jay S. Skyler, M.D.* (Jefferson Med. Coll., 1969); Woodhall Stopford, M.D. (Harvard, 1969).

Assistant Clinical Professors: H. Dean Belk, M.D. (Med. Coll. of South Carolina, 1960); Henry J. Carr, Jr., M.D. (Duke, 1954); Thomas L. Dulin, M.D. (Duke, 1957); J. F. Finklea, M.D. (Med. Coll. of South Carolina, 1958), D.P.H. (Michigan, 1966); Aston T. Griffin, M.D. (Duke, 1958); Douglas I. Hammer, M.D. (Tufts, 1962); V. Hasselblad, Ph.D. (California at Los Angeles, 1967); Philip Naumoff, M.D. (Duke, 1937); Glenn C. Newman, M.D. (Duke, 1939); James C. Nuckolls, M.D. (Duke, 1966); Simmons Patterson, M.D. (Pennsylvania, 1939); Cranford O. Plyler, Jr., M.D. (George Washington, 1953); Robert H. Shackelford, M.D. (Bowman Gray, 1947); C. M. Shy, M.D. (Marquette, 1962); George T. Wolff, M.D. (Jefferson Med. Coll., 1952).

*On leave of absence.

Clinical Associates: Lawrence M. Alexander, M.D. (Duke, 1952); J. Ted Best, M.D. (North Carolina, 1968); Henry J. Carr, Jr., M.D. (Duke, 1954); R. S. Cline, M.D. (North Carolina, 1957); F. P. Dalton, M.D. (Duke, 1960); James S. Henning, M.D. (North Carolina, 1971); P. O. Howard, M.D. (Virginia, 1955); John R. Kindell, M.D. (Virginia, 1955); J. P. Stratton, M.D. (Harvard, 1961)
Instructors: Joyce Clayton Nichols, R.P.A. (Duke, 1970); D. H. Tilley, M.A. (Duke, 1967).

Required Course

CHS-200—required as part of the Introduction to Clinical Medicine at the end of the first year—consists of lecture (discussions presented by faculty and guests to introduce students to the health care system) its problems, structure, and economic sociological, and ethical characteristics are emphasized. New techniques for improving access to and distribution of medical care are also discussed. Biostatistics and epidemiology are taught in small group sessions.

Electives

CHS-208(B). Medical Uses of Computers. The elements of digital computer programming and techniques of data storage and retrieval. Emphasis will be on familiarizing the student with possible uses of digital computers in a variety of medical data handling problems. Terms: 3 and 4. Weight: 2.
Rosati and Hammond



CHS-211(B). The Profession of Medicine. A seminar to discuss medical people and their work. Major consideration will be given to the nature of medical knowledge, the structures which have emerged for the practice and transmission of this knowledge, medical men in practice, and medical men as professionals. A number of sessions will consider alternatives to the present structuring of the knowledge and settings associated with modern medicine and the emergence of paraprofessionals and semiprofessionals on the medical scene. Each student will be required to carry out a special research project. Terms: 1, 2, 3, or 4. Weight: 2. *Schneller*

CHS-212(B). Application of the Systems Approach in Medical Practice. A series of two-hour seminars to discuss and highlight the value of the systems approach in improving the quality of medical care in various health care settings. Topics to be discussed include: collection of data for functional analysis of medical practice, analysis of the quality of care, analysis of manpower and computer innovations, and cost-benefit analysis. The student will apply the discussion material to a specific area of interest in medical practice, collecting and analyzing his own data. Suggested reading list will be provided. Terms: 1 and 2. Weight: 2. *Schilder*

CHS-215(B). Biostatistics in the Medical Sciences. The theory and application of basic statistical concepts as they affect the design and analysis of biomedical research activities. Terms: 2 or 4. Weight: 2. *O'Fallon*

CHS-225(B). Digital Computers and Their Application in the Health Sciences. For students desiring an intensive exposure to medical computer applications. This course provides a variety of options in computer medicine. A complete course begins in the summer and goes throughout the school year. It includes CPS-51 (Introduction to Digital Computation), which will be taught in an intensive sequence in the second summer term preceding the rest of the course. A weekly seminar and apprenticeship to a clinician utilizing computers form a central focus for the course. Every term. Weight: 10. *Woodbury and Hammond*

CHS-227(B). Medicine in America. The historical development of medical science, the medical profession, and patterns of medical care in the United States. Included will be such topics as sanitary reform, the physicians' standing in society, medical organizations, and poverty and medicine. Terms: 3 or 4. Weight: 1. *Brieger*

CHS-229(B). The Development of Modern Medicine. Comprising lectures, discussion, and readings, this course will outline the general history of medicine and will then emphasize the evolution and acceptance of some of the key ideas of modern medicine such as the cell theory, the germ theory, antiseptics, and theories of immunity. The focus will be on the nineteenth and early twentieth centuries. Terms: 1 or 2. Weight: 1. *Brieger*

CHS-231(B). Medical Care Insurance. A seminar to cover the history of health insurance in the United States and selected European countries; compulsory versus voluntary insurance; advantages and disadvantages of major specific programs; interests of the consumer, the provider, and the insuring agency; attitudes and role of organized medicine; trends in health insurance. Terms: 2, 3, 4, or summer. Weight: 1. *Goldwater*

CHS-233(B). Medicine and Industry. Seminar-type discussions covering historical background (developments prior to the industrial revolution); important early figures (Agricola, Paracelsus, Ramazzini, etc.); labor legislation and workmen's compensation interests and roles of employees, trade

unions, insurance companies, government, universities, etc; occupational health hazards and diseases and industrial hygiene; occupational health services; professional and community relationships; trends and prospects. Terms: 2, 3, 4, or summer. Weight: 1. Goldwater

CHS-235(B). Collection and Analysis of Survey Information. A body of survey data will be given directed analysis. Essential data collection, preparation, statistical and computer techniques will be learned. A questionnaire prepared for a sex education survey in connection with OBG-241(C) will provide a basic set of data for analysis. Questions for discussion include: assessment of effectiveness of course presentation; response difference as related to sex, age, and race of respondent; item analysis of questionnaires. Terms: 2 or 4. Weight: 1-2. Dorsey

CHS-237(B). Analysis of Health Care Systems. A 9-18 week program under the auspices of the Department of Community Health Sciences to permit a student to study health care systems and analytic tools appropriate to solving problems of health care delivery. A weekly 2-hour seminar with the departmental staff will provide a central focus. Each student will carry out a project. The student will be encouraged to utilize in his project approaches developed in the disciplines of management sciences, economics, sociology, computer technology, biostatistics, and epidemiology. Every term. Weight: 8. Estes and Staff

CHS-238(B). Tutorial in Community Health Sciences. An eight week, individually arranged experience, in which the student participates in the research program of a faculty member. The subject matter, course weight, and meeting time will be arranged with the faculty member. Every term. Weight: 1-8 per term. Estes and Staff

CHS-213(C). Health Care in Durham County. A tutorial based on consideration of Durham County as a community unit for health care planning. Topics will include discussion of the demographic profile of the county population, governmental and voluntary agencies delivering care, hospitals and other institutions concerned with diagnosis and treatment, the various models of medical practice that exist in Durham, the use of health manpower, the extent of community participation in health care planning and decision making. Each student will be required to carry out a special research project. Students with special interests may spend additional time in studying particular community problems that interest them. Term: 2. Weight: 2. Salber and Staff of the Department of Community Health Sciences.

CHS-217X(C). Community Health in Georgia. An experience in applied community health sciences in Georgia: Epidemiology of cardio- and cerebrovascular disease—Evans County Study (started in 1960—now in its fourteenth year). Development of research projects depending on the special interest of the student leading to papers for publication. Room and board, mileage will be paid (Evans County Health Department). Term: summer. Weight: 9. Heyden and Hames (general practitioner, Director of the Evans County Study)

CHS-219(C). Tutorial in Clinical Epidemiology. Selected topics will be chosen for intensive reading and discussion. Major emphasis is on cardio- and cerebrovascular chronic-degenerative and major neoplastic diseases, including patient demonstrations on the ward. Terms: 3 or 4. Weight: 2. Heyden

CHS-221(C). Computers in Patient Monitoring and Clinical Research. For students who have already learned the fundamentals of digital computing, an advanced tutorial concerning the use of large computers in the handling of analog and categorical clinical data originating from patients. Each student will be encouraged to pursue an independent research project. Every term. Weight: 2-4. *Rosati and Starmer*

CHS-239(C). Community Medical Care Experience. An experience will be arranged for each student under the supervision of competent clinical instructors in their own clinic setting. A portion of the term will be spent in discussion of the salient features which make the particular clinical environment similar to and distinct from other representative types of clinical experience. Possibilities include clinical activities in a family practice clinic, a small hospital environment, or a neighborhood health clinic. A variety of locations are available, so interested students are urged to discuss possibilities with instructor or staff. Every term. Weight: 9. *Estes and Staff*

CHS-241(C). Urban and Rural Health Care Delivery Models. A seminar to discuss an ongoing study of community health care in the Bragtown and Rougemont communities. Topics under discussion will include the bounds, structure, and characteristics of the populations under study; health care needs and desires; availability and needs for preventive services; health educational needs; problems of acute medical care delivery and chronic and home care; available community resources. Term 2 will be a tutorial project on one of the above subject areas. Terms: 1 and 2 or 3 and 4. Weight: 1-3. *Schneller, Salber, and Staff*

CHS-243(C). Ambulatory Clinics. A two-hour seminar to discuss the following topics: group practice, prepayment versus fee for service plans, screening clinics, use of ancillary health manpower, automated medical records, accounting procedures, ambulatory health centers. Terms: 3 or 4. Weight: 1. *Cole and Staff*

CHS-247(C). Philosophical Problems for Physicians. This summer is meant to bring the resources of literature, poetry, philosophy, theology, and sociology to bear upon specific ethical and philosophical problems with which the practicing physician deals. Each student will be asked to lead at least one seminar and at least half of the specific subjects will be chosen by the students. Where appropriate and desirable, selected outside visitors will be invited to contribute to the discussion. The following subjects will be among those offered for consideration: (1) death and dying from the patient's and physician's point of view; (2) the problem of pain and the confrontation with horror; (3) positive and negative euthanasia—societal and legal carriers to change; (4) abortion, eugenics, and transplantation—ethical implications; (5) informed consent, the golden rule, and the history of auto-experimentation; (6) the ethics of the double-blind controlled therapeutic trial; (7) the idea of a profession; (8) the concept of the quality of indifference as a characteristic of the health care worker; (9) anxiety and the plight of the individual in a technocratic society. Suggested reading lists for each subject will be provided. Terms: 3 or summer. Weight: 2. *Boeck*

CHS-253(C). Rehabilitation Medicine. Utilization of rehabilitation techniques as applied to chronic patient care. Work with paramedical personnel in the overall therapy and discharge planning of severely disabled patients and become familiar with public and private resources. Course is flexible and can be tailored for specific need and requirement of student. Terms: 1, 2, 3, or 4. Weight: 1-6. *Roberts and Staff*

CHS-255(C). University Health Services Clinic. A clinical experience aimed at providing the student with experience in diagnosis and treatment of those common illnesses comprising 80-90 percent of problems seen in a primary care practice setting. The student will work under the direction and close supervision of faculty members in the University Health Services Clinic, and will have an opportunity to work with other clinic team members, such as physician's assistants and nurse practitioners. Every term. Weight: 8. Cole, Nelius, Hathaway, Stopford, Naumann, and Nowlin

CHS-257(C). Pollution, Politics, and Public Health. Legislation and other regulations designed to control environmental pollution depend heavily on evidence of adverse effects on human health. Using actual case studies of recent legislation (lead, mercury, phosphates, etc.) the process of standard-setting will be examined, particularly in so far as health effects are used to support legislative and administrative action. A major part of the teaching material will be drawn from the personal experiences of the instructor. Terms: 2, 3, or 4 and summer II. Weight: 1. Goldwater

Medicine

Professor: James B. Wyngaarden, M.D. (Michigan, 1948), Chairmon.

CARDIOLOGY DIVISION

Professor: Andrew G. Wallace, M.D. (Duke, 1959), *Chief*.

Professors: E. Harvey Estes, M.D. (Emory, 1947); Joseph C. Greenfield, M.D. (Emory, 1956); William R. Harlan, M.D. (Virginia, 1951); Edward S. Orgain, M.D. (Virginia, 1930); Eugene A. Stead, Jr., M.D. (Emory, 1932).

Associate Professors: Victor S. Behar, M.D. (Duke, 1961); Walter L. Floyd, M.D. (Johns Hopkins, 1954); Yi-Hong Kong, M.D. (Natl. Defense Med. Center, Taiwan, 1958); Robert J. Lefkowitz, M.D. (Columbia, 1966); Patrick A. McKee, M.D. (Oklahoma, 1962); James J. Morris, M.D. (State Univ. of New York, 1959); Robert H. Peter, M.D. (Duke, 1961); Robert E. Whalen, M.D. (Cornell, 1956).

Assistant Professors: Robert J. Bache, M.D. (Harvard, 1964); David L. Brewer, M.D. (Oklahoma, 1966); Fred R. Cobb, M.D. (Mississippi, 1964); Peter P. Gebel, M.D. (Harvard, 1958); Barbara C. Newborg, M.D. (Johns Hopkins, 1949); Ruth L. Peschel, M.D. (Univ. of Berlin, 1931); Robert A. Rosati, M.D. (Duke, 1967); C. Frank Starmer, Ph.D. (North Carolina, 1968); Harold C. Strauss, M.D. (McGill Univ., Montreal, Canada, 1964); Galen S. Wagner, M.D. (Duke, 1965); Abe Walston, M.D. (Duke, 1963); Robert A. Waugh, M.D. (Pennsylvania, 1966); Redford B. Williams, M.D. (Yale, 1967).

Associates: David B. Gilbert, M.D. (Colorado, 1965); Philip McHale, Ph.D. (Duke, 1972); John B. Reed, M.D. (Harvard, 1970); Robert H. Svenson, M.D. (Chicago, 1969).

Instructor: Michael A. McNulty, Ph.D. (North Carolina, 1973).

DERMATOLOGY DIVISION

Professor: J. Lamar Callaway, M.D. (Duke, 1932), *Chief*.

Associate Professors: Lowell A. Goldsmith, M.D. (State Univ. of New York, 1963); Sheldon R. Pinnell, M.D. (Yale, 1963); John P. Tindall, M.D. (Duke, 1959).

ENDOCRINOLOGY DIVISION

Professor: Harold E. Lebovitz, M.D. (Pittsburgh, 1956), *Chief*.

Professors: Harry T. McPherson, M.D. (Duke, 1948); William N. Nicholson, M.D. (Johns Hopkins, 1931).

Associate Professor: Jerome M. Feldman, M.D. (Northwestern, 1961).

Assistant Professors: George J. Ellis, M.D. (Harvard, 1963); Robert E. Fellows, Jr., M.D. (McGill, 1959), Ph.D. (Duke, 1969); Charles Johnson, M.D. (Howard, 1963); Francis A. Neelon, M.D. (Harvard, 1962).

Associate: Jay S. Skyler, M.D. (Jefferson Med. Coll., 1969).

GASTROENTEROLOGY

Professor: Malcolm P. Tyor, M.D. (Duke, 1946), *Chief*.

Associate Professors: Michael E. McLeod, M.D. (Duke, 1960); Steven H. Quarfordt, M.D. (New York Univ., 1960).

Assistant Professors: John T. Garbutt, M.D. (Temple, 1962); Jacqueline C. Hijmans, M.D. (Univ. of Leiden, 1951); Alfred L. Hurwitz, M.D. (Harvard, 1967); Paul G. Killenberg, M.D. (Pennsylvania, 1963); Charles M. Mansbach, II, M.D. (New York Univ., 1963).

HEMATOLOGY DIVISION

Professor: R. Wayne Rundles, Ph.D. (Cornell, 1937), M.D. (Duke, 1940), *Chief*.

Professors: John Laszlo, M.D. (Harvard, 1955); Wendell F. Rosse, M.D. (Chicago, 1958); Stuart M. Sessoms, M.D. (Med. Coll. of Virginia, 1946).

Associate Professors: William B. Kremer, M.D. (State Univ. of New York, 1962); Harold R. Silberman, M.D. (Washington Univ., 1956).

Assistant Professors: Ronald Yan-li Chuang, Ph.D. (California at Davis, 1970); Harvey J. Cohen, M.D. (State Univ. of New York, 1965); Walter E. Davis, M.D. (Duke, 1966); Bruce W. Dixon, M.D. (Pittsburgh, 1965); Andrew T. Huang, M.D. (Taiwan, 1965); Donald S. Miller, M.D. (Harvard, 1962).

Associates: Richard H. Dixon, M.D. (Duke, 1969); Wade K. Smith, M.D. (Johns Hopkins, 1963).

INFECTIOUS DISEASE DIVISION

Professor: Suydam Osterhout, M.D. (Duke, 1949), Ph.D. (Rockefeller Inst., 1959).

Associate Professor: Thomas R. Cate, M.D. (Vanderbilt, 1959).

Assistant Professor: John D. Hamilton, M.D. (Colorado, 1964).

Associate: Harry A. Gallis, M.D. (Duke, 1967).

NEPHROLOGY DIVISION

Professor: Roscoe R. Robinson, M.D. (Oklahoma, 1954), *Chief*.

Professors: James R. Clapp, M.D. (North Carolina, 1957); J. Caulie Gunnells, M.D. (South Carolina Med. Coll., 1956).

Associate Professor: C. Craig Tisher, M.D. (Washington Univ., 1961).

Assistant Professors: Robert A. Gutman, M.D. (Florida, 1962); Richard M. Portwood, M.D. (Texas, 1954); William E. Yarger, M.D. (Baylor, 1963).

Associate: Jonathan Dranov, M.D. (Pennsylvania, 1969).

NEUROLOGY DIVISION

Professor: Stanley H. Appel, M.D. (Columbia, 1960), *Chief*.

Professors: Albert Heyman, M.D. (Maryland, 1940); Talmage L. Peele, M.D. (Duke, 1934); John B. Pfeiffer, Jr., M.D. (Cornell, 1942).

Associate Professors: Irwin A. Brody, M.D. (Pennsylvania, 1956); Marcel Kinsbourne, B.M., B.Ch. (Guy's Hospital, London, 1955); Ara Tourian, M.D. (Iowa, 1958).

Assistant Professors: J. Gordon Burch, M.D. (Univ. of Alberta, 1967); James N. Davis, M.D. (Cornell, 1965); Antonio V. Escueta, M.D. (Univ. of Santo Tomas, Phillipine Islands, 1963); John F. Griffith, M.D. (Univ. of Saskatchewan, 1958); Allen D. Roses, M.D. (Pennsylvania, 1967); Saul M. Schanberg, M.D. (Yale, 1964), Ph.D. (Yale, 1961).

Associate: James O. McNamara, M.D. (Michigan, 1968).

PULMONARY-ALLERGY DIVISION

Professor: Herbert O. Sieker, M.D. (Washington Univ. 1948), *Chief*.

Professors: Johannes A. Kylstra, M.D. (Univ. of Leiden, 1952), Ph.D. (Univ. of Leiden, 1958); William S. Lynn, M.D. (Columbia, 1946); Herbert A. Saltzman, M.D. (Jefferson, 1952).

Associate Professors: Charles E. Buckley, M.D. (Duke, 1954); Thomas R. Cate, M.D. (Vanderbilt, 1959); Hiroshi Nagaya, M.D. (Univ. of Tokyo, 1956).

Assistant Professors: Byron D. McLees, M.D. (Duke, 1967); Samuel M. McMahon, M.D. (Ohio State, 1962).

Associate: Charles H. Scoggin, M.D. (Colorado, 1970).

RHEUMATIC AND GENETIC DISEASE DIVISION

Professor: William N. Kelley, M.D. (Emory, 1963), Chief.

Professors: Grace P. Kerby, M.D. (Duke, 1946); James B. Wyngaarden, M.D. (Michigan, 1948).

Associate Professors: Nicholas Kredich, M.D. (Michigan, 1962); Ralph Snyderman, M.D. (State Univ. of New York, Downstate Med. Center, 1965).

Assistant Professors: Edward W. Holmes, M.D. (Pennsylvania, 1967); Peter F. Pepe, M.D. (Temple, 1966); Jesse E. Roberts, M.D. (Louisiana State, 1961).

Associate: Joseph McCord, Ph.D. (Duke, 1970).

ADJUNCT FACULTY

Professors of Experimental Medicine: Gertrude B. Elion, D.Sc. (George Washington, 1969); George H. Hitchings, Ph.D. (Harvard, 1933); Robert A. Maxwell, Ph.D. (Princeton, 1954); Charles A. Nichol, Ph.D. (Wisconsin, 1949).

CLINICAL FACULTY

Clinical Professor: John R. Haserick, M.D. (Minnesota, 1941).

Clinical Assistant Professors: A. Derwin Cooper, M.D. (George Washington, 1932), Durham, N. C.; John C. Lumsden, B.S. (North Carolina State Univ., 1947), Raleigh, N. C.; Thomas R. Harris, M.D. (Tennessee, 1955), Shelby, N. C.; Charles W. Styrone, M.D. (Duke, 1938); Raleigh, N. C.; Edward S. Williams, M.D. (North Carolina, 1954), Durham, N. C.

Clinical Associates: Sherwood W. Barefoot, M.D. (Duke, 1938), Greensboro, N. C.; Woodrow W. Batten, M.D. (Bowman Gray, 1944), Smithfield, N. C.; Robert B. Bomberg, M.D. (Colorado, 1964), Durham, N. C.; John R. Bumgarner, M.D. (Med. Coll. of Virginia, 1939); Raleigh, N. C.; George W. Crane, M.D. (Northwestern, 1946), Durham, N. C.; Frank P. Dalton, M.D. (Duke, 1960), Durham, N. C.; Walter C. Fitzgerald, M.D. (Virginia, 1943), Danville, Va.; Robert S. Gilgor, M.D. (Pennsylvania, 1962), Chapel Hill, N. C.; Harvey E. Grode, M.D. (Duke, 1960), Durham, N. C.; John H. Hall, M.D. (Duke, 1964), Greensboro, N. C.; Michael A. Hamilton, M.D. (Rochester, 1964), Durham, N. C.; H. LeRoy Izlar, Jr., M.D. (Duke, 1948), Durham, N. C.; George E. Koury, M.D. (Tulane, 1944), Burlington, N. C.; Thomas D. Long, M.D. (Bowman Gray, 1952), Roxboro, N. C.; Emmett S. Lupton, M.D. (New York Univ., 1938), Greensboro, N. C.; John A. Lusk, M.D. (Alabama, 1951), Greensboro, N. C.; Isaac H. Manning, Jr., M.D. (Harvard, 1935), Durham, N. C.; Joseph P. McCracken, M.D. (Duke, 1938), Durham, N. C.; D. E. Miller, M.D. (Duke, 1956), Durham, N. C.; W. S. Miller, M.D. (North Carolina, 1961), Raleigh, N. C.; John A. Moore, M.D. (Med. Coll. of Virginia, 1948), Greensboro, N. C.; James R. O'Rourke, Jr., M.D. (Kentucky, 1966), Durham, N. C.; Henry T. Perkins, M.D. (Duke, 1957), Raleigh, N. C.; Vade G. Rhoades, M.D. (Bowman Gray, 1960), Goldsboro, N. C.; Jack G. Robbins, M.D. (Duke, 1948), Durham, N. C.; Richard J. Rosen, M.D. (George Washington, 1955), Greensboro, N. C.; Mehrdad M. Sahba, M.D. (Isfahan Faculty of Med., Iran, 1957), Durham, N. C.; William V. Singletary, M.D. (Duke, 1943), Durham, N. C.; Allen D. Smith, M.D. (Georgia, 1937), Durham, N. C.; John P. Stratton, M.D. (Harvard, 1961), Durham, N. C.; David G. Welton, M.D. (Wisconsin, 1935), Charlotte, N. C.; William G. Wysor, M.D. (Virginia, 1950), Durham, N. C.

Required Courses

The Department of Medicine traditionally has the responsibility of preparing the student for a lifetime of learning as he gives care to patients who ask him for help. The first step is to begin to think and act like a doctor.

MED-201—Introduction to Clinical Medicine—a course in the first year prepares the student to take an active role in patient care. The course is designed to introduce students to the methods involved in obtaining information about patients and their problems by means of accurate and complete history taking and performance of physical and laboratory examinations. Early in the course, students are taught the methods used in patient interviewing, the essentials of examination of various organ systems, and the techniques and meaning of the hematological and other laboratory examinations by means of introductory lectures and experience with patients on the ward and in the laboratory. Information obtained in the other first year courses is correlated with clinical manifestations of health and disease. The

abnormalities found in the physical examination of certain organ systems are correlated with the abnormalities of laboratory values found. Patient conferences are used to demonstrate the value of obtaining all data about the patient to solve his problems. The student is expected to learn to do this in patients with whom he has contact during ward sessions.

MED-205—the basic course in medicine for all students—is the eight-week clinical clerkship in the second year. The student's desire to give good care is the motive which drives him to excellence. The student learns to identify problems of the patient and marshal the information obtained by past training. He recognizes and attempts to focus the data learned from the basic sciences to specific clinical problems. Using patients as a means of integration, students should continue reading in anatomy, physiology, microbiology, pharmacology, and biochemistry. Problems encountered are discussed with fellow students, interns, residents, and senior staff to gain familiarity with ideas and concepts by actively manipulating them.

The goal of the Department of Medicine is for students to have as many learning experiences as possible by active participation. We hope that they will enjoy these learning experiences so much that they will continue them as long as they see patients. The goal is not to cover the entire field of medicine. Students will engage in extensive postdoctoral clinical or research training. The aims are to assist students in acquiring clinical skills and learning habits that will enable them to identify and solve new problems as they are encountered.

In caring for patients with ill-defined genetic and acquired differences with numerous unknown variables, many erroneous conclusions may be made. Students must learn to examine carefully oral and written statements, and inquire of all authorities the source of data which underlie their conclusions. One way for students to learn the difficulties in drawing accurate conclusions about biological systems is to give them opportunities to establish facts on the basis of their own research. This is a very effective method of teaching. The intellectual discipline involved better prepares the future clinician for the role of a lifetime of learning and enables academically oriented students to assess their own potentialities for investigative careers.

The second year course in medicine is aimed at providing students with the basic tools used in the practice of medicine. This is the time when they should consolidate the material learned during the first year and apply it to the study of their own patients. During a brief eight-week course it is not possible to cover the entire body of knowledge of internal medicine. Therefore, students are provided a series of representative learning experiences based on the case study method. The goals are to teach methods of approach to patients, and provide a firm foundation for the solution of new medical problems as they are encountered in the months and years ahead. Specific expectations of sophomore students are: (1) To obtain and carefully record meaningful histories and perform physical examinations on two or three patients each week. On the day of admission the student will review and compare his findings with the responsible intern or resident. Difference of opinions should be discussed and, when possible, resolved by a return to the bedside. The following day students will present their data to the attending physician. The presentation should be well organized (with the help of the resident), and the present illness should include a carefully reasoned documentation of the events in chronological order which led to the patient's hospitalization. It should contain pertinent facts leading to the

most likely diagnosis and also the pertinent negative facts which weigh against a possible alternative diagnosis. (2) To examine their patients repeatedly and reflect on the diagnostic and therapeutic management. It is their responsibility to understand the objectives and to know the results and the interpretation of all diagnostic tests applied to their patients. They will actually perform as many of the necessary tests as possible and record their interpretations in frequent progress notes. (3) To read widely on topics related to their patients, particularly in applicable basic sciences to understand disease mechanisms. They should begin with the descriptions in standard textbooks of medicine which serve as a useful introduction to the subject. Special aspects of the patient's problem should be pursued in basic science or other textbooks, in monographs, or in relevant journals. (4) To know in depth those diseases present in their own patients, including different diagnostic features which distinguish those conditions from related diseases. At this stage of training they are not expected to have equivalent depth of knowledge of diseases that they have not yet encountered, but are responsible for knowing the major points about patients presented in rounds or at the various noon conferences. Principles of therapy should be understood, but details of drug regimens are better left for subsequent experiences. Students are encouraged to participate actively in all teaching exercises on the ward, whether or not their own patients are being discussed.

Electives

MED-202(C). Introduction to Clinical Neurology. Overall view of clinical neurology for non-specialist. Emphasis on clinical techniques in neurologic examination, approach to neurologic diagnosis and anatomic, pathologic and physiologic basis for localization of neurologic lesions. EEG and neuro-roentgenogram interpretation. Common neurologic disturbances at bedside conferences. Every term. Weight: 2. *Appel and Neurology Staff*

MED-204(C). Neurology Tutorial. A view of neurology with a clinical or basic science emphasis, depending on student interest. Course especially for students planning careers in psychiatry, neurosurgery, internal medicine, orthopaedics, or neurology. Supervised examination of neurologic patients, discussion seminars, and a guided program of reading. Every term. Weight: 4. *Brody*

MED-206(C). Clinical Clerkship in Neurology. A clerkship in clinical neurology emphasizing diagnosis and therapy of neurologic diseases. The students will participate in inpatient and outpatient workups, teaching conferences, diagnostic studies. Every term. Weight: 2-8. *Appel and Neurology Staff*

MED-207(C). Advanced General Medicine. The student is assigned to inpatient, or outpatient medical services, or emergency ward, and is responsible for patients assigned to him. He will learn about disease and its management through the staff and consultants directly concerned with the patients. Every term. Weight: 8. *Wyngaarden and Staff*

MED-208(C). Cognitive Neurology. The syndromes arising from focal cerebral damage studied at bedside and by experimental psychological methods. Emphasis on detailed analysis of disturbed cerebral function (aphasia, agnosia etc.). Comparable methods used to study children with reading and writing difficulties. Instruction will be given in experimental psychological techniques. Students offered the opportunity to participate in on-going research projects. Terms: 1, 2, 3, or 4. Weight: 4-8. *Kinsbourne*

MED-209(C). Allergy and Respiratory Diseases. Course provides both introduction and indepth training in the clinical and laboratory aspect of allergic and respiratory illnesses. Patients are assigned to the student from both the in- and outpatient services. Seminars and conferences are held throughout the week for instruction in allergy, clinical immunology, basic immunology, pulmonary function evaluation, and pulmonary physiology. Every term. Weight: 8. Sieker, Buckley, Cate, Cooper, Kylstra, McMahon, Nagaya, Pratt, and Saltzman

MED-215(C). Clinical Dermatology. Students will be assigned to public and private outpatient clinics and will be assigned public and private patients in the hospital in an effort to understand the pathologic physiology of dermatologic disorders and thus management and treatment. Special arrangements needed for 4 or 5 credits. (See MED-216C for lecture course.) Every term (summer terms by special arrangement only). Weight: 4, 5, or 8. Callaway and Tindall

MED-216(C). Clinical Dermatology. Students will be given a series of two lectures weekly using 35mm. kodachromes to illustrate both clinical conditions and microscopic sections of the pathologic changes in an effort to understand the pathologic physiology of dermatologic disorders and thus management and treatment. Patient demonstrations will be made half-day to greatly enhance clinical experience. Lecture and demonstration course only. (See MED-215C for course offering 4, 5, or 8 credits.) Term: 3. Weight: 2. Tindall

MED-217(C). Gastroenterology. The role of the gastrointestinal tract and liver in health and disease is emphasized through use of liver and small bowel biopsy with morphological, biochemical, and physiological studies in the daily diagnosis and care of patients hospitalized on the gastroenterology inpatient service and general wards of Duke and V. A. Hospitals. Every term. Weight: 4 or 8. Tyor, Garbutt, Hijmans, Mansbach, McLeod, Quarfordt, and Killenberg

MED-221(C). Metabolism and Endocrinology. A general course in which the whole patient is approached from an endocrine point of view. Clinical and laboratory diagnosis and titration of therapy are facilitated by the use of a standard data base and study of appropriate flow sheet parameters. The student participates in the evaluation and management of both inpatients and outpatients. Alternatives for eight credits include the V. A. consultation service, the Duke Staff and Clinical Research Unit Service, and the Duke Private Service Staff outpatient clinic and all endocrine conferences are attended on each service. A four-credit option (4 weeks) allows one student to choose Drs. Ellis, Johnson, or McPherson as his clinical preceptor. The student will care for private inpatients and both staff and private outpatients under his preceptor's guidance. This option must be scheduled by the student with the preceptor he chooses. Every term. Weight: 4 or 8. Lebovitz, McPherson, Nicholson, Ellis, Feldman, Neelon, and Johnson

MED-227(C). Rheumatic and Genetic Diseases. The student acquires indepth experience in the recognition and care of patients with generalized connective tissue diseases and metabolic arthropathies. He works-up and follows patients on wards and in the clinic. Daily rounds with the staff extend his experience. He learns specialized laboratory and clinical techniques. Full time eight weeks recommended. May be taken for 4 units

credit—student spends full time on unit for 4 weeks; 4 weeks on another course by agreement with that instructor. Every term. Weight: 4 or 8. Kelley, Kerby, Roberts, Wyngaarden, Kredich, Snyderman, Holmes, and Pepe

MED-229(C). Nephrology. Fundamental and clinical aspects of nephrology, renal physiology, hypertension, renin-angiotensin metabolism, and disorders of salt and water metabolism. Full clinical participation on inpatient and outpatient services and the dialysis-transplantation service is offered. Attendance at several scheduled rounds, conferences, and seminars is required. Every term. Weight: 4 or 8. Robinson, Clapp, Dennis, Gallis, Gunnells, Gutman, Portwood, Tisher, and Yarger

MED-231(C). Clinical Hematology and Oncology. Unique opportunity to participate actively in care and study of patients with wide variety of hematologic diseases, anemias, bleeding disorders, leukemias, lymphomas, secondary gout, etc. Systematic, quantitative clinical evaluation, and basic techniques of blood and marrow examination, serum and urine protein studies. Every term. Weight: 8. Rundles, Silberman, Rosse, Miller, Kremer, Huang, Logue, and Laszlo

MED-233(C). Clinical Immunohematology. This course is designed to provide clinical and diagnostic laboratory experience in the evaluation and treatment of patients with hematologic disorders characterized by abnormalities of the immune system. The course is integrated in part with clinical hematology and oncology (MED-231). A special opportunity to study blood banking problems, coagulation problems, and clinical problems in immune lysis will be provided. Every term. Weight: 6-8. Rosse, Logue, Silberman, and Rundles

MED-234(C). Metabolic-Genetic Disease Seminar. This course will explore in detail clinical, metabolic, and genetic information on inborn errors of metabolism. It will include patient presentations, staff lectures, student seminars, and textbook and literature reading. The group will be small enough to permit maximal personal interaction. Term: 3. Weight: 5. Wyngaarden, Sidbury, Appel, Kelley, Kredich, McLees, Neelon, Rosse, Snyderman, Tourian, and Staff

MED-236(C). Research Topics in Endocrinology and Metabolism. Research training and experience in the field of endocrinology and metabolism. This is arranged individually between the student and a specific member of the endocrine staff. Every term. Weight: 8. Lebovitz, Feldman, Neelon, and Staff

MED-237(C). Metabolic Response to Disease. This seminar series deals with the integrative aspects of the endocrine-metabolic response to disease states. Representative topics include the events involved in adaption to feeding, fasting, injury, surgery, infection, and certain medical disorders (i.e., diabetes, hypoglycemia, etc.). Term: 4. Weight: 1. Lebovitz, Feldman, McPherson, Ellis, Neelon, and Staff

MED-242(C). Clinical Cardiology (Duke Hospital). Broad experience in the clinical aspects of cardiovascular disease is provided by participation in patient care, consultation service, and diagnostic facilities of the cardiovascular division. Specific experience is available in electrocardiography, phonocardiography, and exercise stress testing. Patient responsibility is acquired either through responsibility for patients on the inpatient service or through consultations. These clinical activities are complemented by a daily teaching conference covering electrocardiography, patient presenta-

tions, and cardiovascular radiology and pathology. Every term. Weight: 8. Wallace, Orgain, Floyd, Whalen, Morris, Greenfield, Chen, and Peter

MED-244(C). Clinical Cardiology (V. A. Hospital). Fundamentals of electrocardiography, vectorcardiography, and indirect diagnostic techniques in cardiology. Clinical cardiology is emphasized during daily rounds with the senior staff. Teaching sessions concentrate on physical diagnosis in the cardiac patient and two weeks are spent on the Coronary Care Unit. Students are asked to follow their patients through cardiac catheterization, pulmonary angiography, and DC cardioversion. One hour conference each morning is devoted to instruction in EKG interpretation. Every term. Weight: 8. Walston, Greenfield, McKee, Bache, Cobb, Waugh, and Brewer

MED-246(C). Clinical Cardiovascular Physiology. Physiologic measures and anatomic details at cardiac catheterization used to teach principles of physical diagnosis, clinical management and interpretation of pathophysiology in congenital, rheumatic, and coronary artery disease. Patients assigned with responsibilities for initial evaluation, physical examination, thorough and detail laboratory study and interpretation. Every term. Weight: 8. Morris, Kong, Peter, Behar, Walston, and Chen

MED-250(C). Allergy and Clinical Immunology. Preceptorship in the laboratory evaluation of patients with immuno-physiologic alterations. A review of basic immunology relevant to patient care is reinforced by application to clinical problems available on ambulatory and ward services. An indepth clinical exploration of disease related immunologic problems and understanding of relevant literature is the basis of an assigned term paper. Every term. Weight: 8. Buckley and Nagaya

MED-252(C). Physiology of Nephrology. This course is composed of lectures designed to provide insight into the pathophysiology of clinical fluid and electrolyte problems. An attempt is made to integrate established physiologic principles into an analysis of common clinical problems. It is the intent of this course to equip the student with sufficient general information to permit him to adapt fluid and electrolyte therapy to the great variety of specific patient-related problems which he will encounter as a house officer. Terms: 2 or 3. Weight: 1. Clapp and Gutman

MED-254(C). Enterohepatic Circulation and Lipoprotein Metabolism. There will be detailed exploration of biological and related clinical aspects of hepatic and intestinal functions. The course will be structured chiefly through lectures and relevant patient presentations. Term: 3. Weight: 2. Tyor, Lack, Quarfordt, McLeod, Mansbach, Garbutt, and Killenberg

MED-256(C). Ambulatory Patient Care. The student is assigned to the outpatient department and the emergency room and will see patients assigned to him and to a colleague house officer. He may design an individualized outpatient/emergency room schedule which will permit him to have a specific balance of patients with acute and chronic illness. Every term. Weight: 1-8. Dixon, Brewer, and Staff

MED-258(C). Introduction to Bronchopulmonary Disorders and Tuberculosis. The course is designed to provide a broad experience in the clinical and laboratory diagnosis of bronchopulmonary diseases and tuberculosis. Emphasis will be placed on learning through active participation in patient care and through correlations of physiologic, radiologic, and pathologic data with disease processes. Every term. Weight: 8. Cooper, Harle, Kylstra, Pratt, Saltzman, and Sieker

MED-260(C). Clinical Infectious Disease. This course will provide experience in the clinical and laboratory diagnosis of infectious diseases, and their therapy. Emphasis will be placed on learning through active participation in infectious disease consultations and library research. Every term. Weight: 4 or 8. *Cate, Hamilton, Suydam Osterhout, Gallis, and Zwadyk*

MED-262(C). Diabetes Mellitus: A Camping Experience. Carolina's Camp for Diabetic Children provides a camping experience for 110 juvenile diabetics annually. Medical support is provided by medical and nursing students and dietetic interns under University staff supervision. Each student is directly responsible for the management of one cabin of campers. He participates in infirmary duty, prepares one of the daily staff seminars, and joins in the general camp activities. Room and board provided. Also offered in Nursing School. Term: Middle two weeks of August. Weight: 2. *Ellis and Skyles*

Microbiology and Immunology

James B. Duke Professor: Wolfgang K. Joklik, D.Phil. (Oxford, 1952), Chairman.

James B. Duke Professors: D. Bernard Amos, M.D. (Guy's Hospital, London, 1963); Joseph W. Beard, M.D. (Vanderbilt, 1929); Norman F. Conant, Ph.D. (Harvard, 1933).

Professors: Richard O. Burns, Ph.D. (Illinois, 1962); Eugene D. Day, Ph.D. (Delaware, 1952); John E. Larsh, Jr., Sc.D. (Johns Hopkins, 1943); Richard S. Metzgar, Ph.D. (Buffalo, 1959); Suydam Osterhout, M.D. (Duke, 1949), Ph.D. (Rockefeller Inst., 1959); Hilda P. Willett, Ph.D. (Duke, 1949).

Associate Professors: Charles E. Buckley, M.D. (Duke, 1954); Rebecca H. Buckley, M.D. (North Carolina, 1958); Wendell F. Rosse, M.D. (Chicago, 1958); Hillard F. Seigler, M.D. (North Carolina, 1960); Frances E. Ward, Ph.D. (Brown, 1965); Robert W. Wheat, Ph.D. (Washington, 1955).

Associate Adjunct Professor: James J. Burchall, Ph.D. (Illinois, 1963).

Assistant Professors: Darrell W. Bigner, M.D. (Duke, 1965), Ph.D. (Duke, 1972); Dani P. Bolognesi, Ph.D. (Duke, 1967); Gale B. Hill, Ph.D. (Duke, 1966); David J. Lang, M.D. (Harvard, 1958); Peter K. Lauf, M.D. (Univ. of Freiburg, 1960); Nelson Levy, M.D. (Columbia, 1967), Ph.D. (Duke, 1973); Jack L. Nichols, Ph.D. (Univ. of Alberta, Canada, 1967); David W. Scott, Ph.D. (Yale, 1969); Ralph E. Smith, Ph.D. (Colorado, 1968); Thomas C. Vanaman, Ph.D. (Duke, 1968); Joseph L. Wagner, Ph.D. (North Carolina, 1972); Catherine M. Wilfert, M.D. (Harvard, 1962); Peter J. Zwadyk, Ph.D. (Iowa, 1971).

Associates: Peter Cresswell, Ph.D. (London Univ., 1971); Jeffrey Dawson, Ph.D. (Case Western Reserve, 1969); Shyuan Hsia, Ph.D. (Washington, 1968); Sara E. Miller, Ph.D. (North Carolina, 1973); Emily Reisner, Ph.D. (Case Western Reserve, 1969); Wade K. Smith, M.D. (Johns Hopkins, 1963).

Instructors: A. Proctor, M.S.; K. Stone, Ph.D.

Research Associates: R. Barrow, Ph.D.; C. Decedue, Ph.D.; B. Dishman, Ph.D.; P. Furman, Ph.D.; H. Gallis, M.D.; H. Huismans, D.Sc.; A. Kemp, Ph.D.; G. Land, Ph.D.; G. Luginbuhl, Ph.D.; M. Macdonald, Ph.D.; N. Mendell, Ph.D.; W. Mitchell, Ph.D.; C. Samuel, Ph.D.; A. Schürch, Ph.D.; S. Shrivastuv, Ph.D.

Required Course

MIC-200—the core course for all freshman medical students—is given in the second semester of the first year. An intensive study is made of the common bacteria, viruses, fungi, and parasites which cause disease in man. The didactic portion of the course focuses on the nature and biological properties of microorganisms causing disease, the manner of their multiplication, and their interaction with the entire host as well as specific organs and cells. The nature of induced immune processes by active and passive immunization and chemotherapy are included.

The laboratory portion of the course is designed to acquaint students with the methods and procedures employed in bacteriological laboratories,

to provide the basis for an understanding of cell-virus interactions and to demonstrate the nature of the more common pathogenic fungi and parasites. Clinical case histories are presented by the clinical staff to correlate this course with patient care.

Electives

***MIC-252(B). General Animal Virology and Viral Oncology.** The first half of the course will be devoted to a discussion of the structure and replication of mammalian and bacterial viruses. The second half will deal specifically with tumor viruses, which will be discussed in terms of the virus-cell interaction, the relationship of virus infection to neoplasia, and the role of the immunological response to tumor virus infection. The viral oncology part of the course may be taken for half credit in Term 4. In this case the permission of the instructors is required. Terms: 3 and 4. Weight: 4. *Zweerink, Smith, Nichols, and Joklik*

***MIC-282(B). Molecular Microbiology.** A study of the structure, growth, and replication of bacteria with a detailed analysis of the synthesis and regulation of the structural, informational, and catalytic macromolecules. Major topics covered include: structure, function, and synthesis of bacterial integuments, DNA, RNA, and protein; genetic and metabolic regulatory mechanisms; primitive differentiation in procaryotes. Terms: 1 and 2. Weight: 4. *Burns, Nichols, Vanaman, Wheat, and Willett*

***MIC-291(B). Immunology I.** Structure and function of immunoglobulins. Characteristics of synthetic and natural antigens. Specificity and cross-reactivity. Methods of immunologic analysis. Cellular aspects and kinetics of antibody formation. Forms of immunologic responsiveness and unresponsiveness. Cellular cooperation. Elicitation and control of immune response. Terms: 1 and 2. Weight: 3. *Scott and Staff*

***MIC-292(B). Immunology II.** Continuation of Immunology I. Terms: 3 and 4. Weight: 3. *Amos and Staff*

***MIC-296(B). Immunochemistry.** The primary and conformational structures of the immunoglobulins—chains, regions, sizes, allotypes, evolution. The antibody binding site—location, specificity, subgroups, idiotypes, antigen accommodation. The reactions of antibodies—affinity and the law of mass action, homogeneous binding, kinetics, virus model, precipitation reaction, active center of multivalent antigens, conformational determinants. Affinity, the immune responses, and clonal selection. Terms: 1 and 2. Weight: 3. *Day*

MIC-304(B). Basic Medical Virology. Topics to be discussed are: structure and replication of major virus groups as a basis for the understanding of viral pathogenesis; cellular and host responses to viral infections; immune responses to and the immunopathology of viral infections; viral epidemiology; DNA and RNA tumor viruses and their possible role in malignancy. Terms: 1 and 2. Weight: 2. *Daniels, Lang, Smith, and Zweerink*

***MIC-330(B). Medical Immunology.** A course designed to present the basic concepts of immunology as they relate to human disease. Emphasized will be tumor immunology, autoimmunity, neuroimmunology, immunohematology, and immunologic deficiency diseases. Case presentations when appropriate. Terms: 3 and 4. Weight: 6. *Levy, C. Buckley, R. Buckley, Snyderman, and Rosse*

MIC-339(B). Diagnostic Microbiology and Infectious Diseases. Introduction to the methods for the laboratory diagnosis of infectious disease and their clinical application. Every term. Weight: 8. Osterhout

MIC-399(B). Preceptorship in Microbiology and Immunology. An individual reading and/or laboratory course in specialty areas supervised by an individual faculty member. Acceptance, nature of topic, and amount of credit by individual arrangement with proposed faculty member. Every term. Weight: 1-8 per 8 weeks. Microbiology and Immunology Staff

MIC-401(B). Pathophysiology of Infectious Diseases. Lecture and seminar course discussing the pathogenesis of infectious diseases including the basic microbiology of the microorganism. This material is presented to allow a better understanding of the means of prevention of infection and the mechanisms of therapy. Term: 4. Weight: 3. Wilfert, Katz, R. Buckley, Cate, Lang, Osterhout, and Griffith

MIC-403(B). Investigative Problems in Disease Caused by Viruses, Mycoplasmas, Bacteria, and Fungi. Introduction to techniques for research with viruses, mycoplasmas, bacteria, and fungi; clinical experience with infectious diseases related to the investigative programs. The student will be involved in some aspect of laboratory research, and should consult with the investigator with whom he would like to work prior to signing up for the course. Every term. Weight: 8. Cate, Lang, Wilfert, Gutman, Hamilton, and Gallis

MIC-405(B). Research in Immunohematology. The course is designed to provide the opportunity for students to select a project involving immunohematologic techniques and to pursue, through original research, the project conclusion. In particular, projects concerned with complement, red cell lysis and red cell antigens will be stressed. Close supervision will be provided. Weekly seminars in immunohematology will be held. Library readings will be stressed. Terms: 1, 2, 3, or 4. Weight: 6-8. Rosse

***MIC-411(B). Molecular and Cellular Bases of Development and Differentiation.** This course is the lecture and seminar series of the Development and Differentiation Study Program, DDS-201(B), without the laboratory of that course. See DDS-201(B) for the objectives and description. Terms: 1 and 2. Weight: 3-4. McCarty, Counce, Padilla, Harris, Sommer, Moses, Kaufman, Johnson, and Vanaman

Obstetrics and Gynecology

Professor: Roy T. Parker, M.D. (Med. Coll. of Virginia, 1944), Choirmon.

Professor: Charles H. Peete, Jr., M.D. (Harvard, 1947).

Associate Professors: Robert G. Brame, M.D. (North Carolina, 1955); George W. Brumley, M.D. (Duke, 1960); Arthur C. Christakos, M.D. (Med. Coll. of South Carolina, 1955); William T. Creasman, M.D. (Baylor, 1960); Marion C. Crenshaw, M.D. (Duke, 1956); Stanley F. Gall, M.D. (Minnesota, 1962); Charles B. Hammond, M.D. (Duke, 1961).

Associate Clinical Professors: Eleanor B. Easley, M.D. (Duke, 1944); Richard L. Pearse, M.D. (Harvard, 1931); Kenneth A. Podger, M.D. (Duke, 1941).

Assistant Professors: Nels Anderson, Jr., Ph.D. (Purdue, 1964); Lillian R. Blackmon, M.D. (Arkansas, 1963); Lynn G. Borchert, M.D. (Michigan, 1968); Arthur F. D. Cole, M.D. (Univ. of Toronto, 1962); Ian D. Duncan, M.B., Ch.B. (Saint Andrews Univ., 1970); Gale Hill, Ph.D. (Duke, 1966); Jarlath MacKenna, M.D. (Univ. Coll., Dublin, 1969); Marcos T. Pupkin, M.D. (Univ. Chile, 1960); John F. Rampone, M.D. (Marquette, 1965); Daniel H. Riddick, M.D. (Duke, 1967); David W. Schomberg, Ph.D. (Purdue, 1965); Lee Tyrey, Ph.D. (Illinois, 1969); John C. Weed, Jr., M.D. (Tulane, 1968); R. Herbert Wiebe, M.D. (Univ. of Saskatchewan, 1962).

Assistant Clinical Professors: Trogler F. Adkins, M.D. (Duke, 1936); John V. Arey, M.D. (Harvard, 1946); John R. Ashe, Jr., M.D. (Duke, 1948); Yancey G. Culton, Jr., M.D. (Duke, 1956);

Lance T. Monroe, M.D. (New York Coll. of Medicine, 1932); William A. Nebel, M.D. (North Carolina, 1962); Philip H. Pearce, M.D. (Duke, 1960); Roston M. Williamson, M.D. (Med. Coll. of Georgia, 1951); Robert K. Yowell, M.D. (Duke, 1961).

Associates: James L. Allen, M.D. (Emory, 1965); David B. Crosland, M.D. (North Carolina, 1958); Jerry Lee Danford, M.D. (Duke, 1967); Carl A. Furr, Jr., M.D. (North Carolina, 1958); Arned L. Hinshaw, M.D. (North Carolina, 1965); Clayton J. Jones, M.D. (Tennessee, 1952); Richard E. Lassiter, M.D. (North Carolina, 1965); Thomas A. Stokes, Jr., M.D. (Duke, 1955).

Research Associates: Marshall Case, B.S.; Claudius P. Jones, R.M.T.; Louise A. Kaufmann, B.A.; Larry Kodack, B.A.

Required Course

The first year student receives instruction in the fundamentals of obstetric and gynecologic history and pelvic examinations during the course, the *Introduction to Clinical Medicine*.

OBG-202—required of all second year students—consists of seven weeks in general obstetrics and gynecology. Students attend lectures, work daily in the general and special outpatient clinics, and are assigned patients on the obstetric and gynecologic wards. Students share in patient care, teaching exercises, and the senior faculty participate in daily tutorial sessions. Clinical conferences, a gynecologic-pathology conference, an endocrine conference, and correlative seminars and lectures are included.

Electives

OBG-205(C). Gynecologic Cancer. A survey of malignancy of the reproductive system. The didactic portion of the course is supplemented by presentations of patients currently in therapy on the wards and in the Gynecologic Cancer Clinic. Every term. Weight: 4 or 8. *Creasman, Duncan, and Parker*

OBG-207(C). Pathology: Obstetrical and Gynecological. Study of normal and pathologic processes in the female in the field of obstetrics and gynecology. Current gross and histologic specimens reviewed along with related material in study collections. Clinical, experimental, and theoretical correlations made when applicable. Every term. Weight: 1 or 2. *Rampone, Brame, and Gynecology Resident on Surgical Pathology*

OBG-211(C). Preparation for Practice. For students preparing for: general practice, pediatrics, general surgery, and internal medicine. Inpatient and outpatient duties as an intern in obstetrics and gynecology. Special lectures in obstetric management and office gynecology with emphasis on good practice techniques. Every term. Weight: 8. *Parker, Brame, and Staff*

OBG-215(C). The Infertile Couple. A clinical study of infertility in the human for students who desire additional instruction in examination, diagnosis, and treatment of the infertile couple. Assigned reading of pertinent medical literature both historical and current is correlated with clinical observation in patients. The student is made familiar with testing techniques and the use of required apparatus and instruments, and participates in the treatment of patients. Terms: 1, 2, 3, or 4. Weight: 4. *Hammond, Peete, Wiebe, and Gynecology Fellows*

OBG-229(C). Endocrinology Seminar. Sessions with discussion of interesting clinical problems and related clinical and basic research in gynecologic endocrinology. Terms: 1, 2, 3, or 4. Weight: 1. *Hammond, Wiebe, Anderson, Schomberg, Tyrey, and Fellows in Endocrine Division*

OBG-231(C). Basic and Clinical Reproductive Endocrinology. Course for students who desire additional basic and clinical instruction in examination,

diagnosis, and treatment of obstetric and gynecologic patients with endocrinopathy. Course consists of basic instruction in neuroendocrine and endocrine mechanisms correlated with examination and treatment of patients in the Endocrinology Outpatient Clinic. Every term. Weight: 4. Hammond, Wiebe, Anderson, Schomberg, Tyrey, and Fellows in Endocrine Division

OBG-235(C). Cytogenetics. Indepth course in human cytogenetics in which basic techniques of studying human chromosomes are applied to clinical situations. Research in human cytogenetics is also stressed. Terms: 1, 2, 3, or 4. Weight: 3. Christakos

OBG-239(C). Perinatal Medicine. A study of clinical factors during pregnancy, labor, delivery, and the first month of life. Emphasis will be placed on abnormal conditions of pregnancy as related to the infant, prenatal pathological conditions adversely afflicting the fetus and newborn, and early management of the infant. Current problems in maternal-fetal relationships will be outlined. The clinical rotation will consist of half time in the delivery room and half time in the nursery. (See also PED-239C.) Every term. Weight: 8. Brumley and Crenshaw

OBG-241(C). Family Life Sciences. A clinical correlative study designed to apply contraceptive techniques, genetic counseling, sex education, and demography in the practice of obstetrics and gynecology. Social implications in these various areas will be included. Every term. Weight: 4. Christakos and Brame

OBG-243(C). Sex Education. This course is designed to prepare health professionals for dealing with situations involving sex education and counseling. The course consists of two parts, a ten week series of training seminars and sensitivity sessions surveying biological, psychological, socio-cultural, and ethical aspects of human sexuality and also providing instruction on techniques of design, organization, and implementation of educational and counseling programs. The final eight weeks of the course will be spent gaining practical experience. The student's project may be of his own design, approved by the committee, or he may participate in one of the ongoing projects of the committee such as teaching the seventh grade curriculum in the public schools, writing curricula for other grade levels, or designing a course on the college level. Terms: 1 and 2, or 3 and 4. Weight: 3. Parker, Katz, Christakos, and Shirley Osterhout

OBG-245(C). Office Gynecology. For students preparing for: general practice, medicine, pediatrics, and surgery. Outpatient clinic and emergency room diagnosis and patient care are taught. Every term. Weight: 4 or 8. Parker and Staff

OBG-247(C). Clinical Obstetrics. For students preparing for: general practice and medicine or pediatrics. Ante-partum, intra-partum, and post-partum patients care are stressed and practical experience in the delivery room is provided at an intern level. Every term. Weight: 4 or 8. Crenshaw, Pupkin, and Staff

OBG-249(C). Clinical Gynecology. For students preparing for general practice, surgery, and urology. Preoperative diagnosis and preparation and postoperative care are stressed. In addition, minor operative procedures are taught and students assume the responsibilities of an intern. Every term. Weight: 4 or 8. Peete, Brame, and Staff

OBG-251(C). Advanced Reproductive Endocrinology. An in-depth program

to involve students in detailed study of the clinical and laboratory aspects and literature regarding reproductive biology, endocrinology, infertility, and conception control. Course consists of participation in the gynecologic endocrinology clinics, complicated obstetric clinic, infertility clinics, care of inpatients, and pertinent laboratory exposure to techniques of study of reproductive hormonal substances. Every term. Weight: 8. Hammond, Wiebe, Anderson, Schomberg, Tyrey, and Fellows in Endocrine Division

Ophthalmology

Professor: Joseph A. C. Wadsworth, M.D. (Duke, 1939), Choirmon.

Professor: Myron L. Wolbarsht, Ph.D. (Johns Hopkins, 1958).

Clinical Professor: Hermann M. Burian, M.D. (Belgrade, Yugoslavia, 1930).

Associate Professors: W. Banks Anderson, Jr., M.D. (Harvard, 1956); Arthur C. Chandler, Jr., M.D. (Duke, 1959); Maurice B. Landers, III, M.D. (Michigan, 1963).

Assistant Professor: John W. Reed, M.D. (Bowman Gray, 1962).

Associates: Eva O. Reese, R.N., B.S. (Duke, 1955); Judy H. Seaber, B.A. (Emory, 1962); Charles F. Sydnor, M.D. (Virginia, 1969).

Clinical Associates: Robert E. Dawson, M.D. (Meharry, 1943); Martin J. Kreshon, M.D. (Marquette, 1954); W. Hampton Lefler, M.D. (Bowman Gray, 1963); Samuel D. McPherson, Jr., M.D. (Johns Hopkins, 1943); Noel W. Young, Jr., M.D. (Duke, 1963).

Clinical Instructor: Larry Turner, M.D. (Duke, 1939).

Electives

OPH-201(C). Investigative Ophthalmology. The student is assigned a project on basic ophthalmologic problems. Technical assistance, sufficient equipment, and laboratory animals are supplied for the completion of the project. The student is expected to attend lectures scheduled for the house staff. Every term. Weight: 4-8. Anderson, Landers, and Wolbarsht

OPH-203(C). General Ophthalmology. A clinical preceptorship in which the student will participate and observe in the regular house staff activities, conferences, lectures, patient care, and treatment including surgery. Emphasis on the use of specialized ophthalmic apparatus is emphasized. Every term. Weight: 3-8. Landers

OPH-205(C). Medical Ophthalmology. The ophthalmic signs and symptoms of systemic disease are presented through patient examination and lectures. Oriented for those students interested, primarily in pediatrics, internal medicine, or ophthalmology. Terms: 1, 2, 3, or 4. Weight: 1. Chandler and Staff

OPH-207(C). Basic Ophthalmic Sciences. Course designed primarily for those students intending to specialize in ophthalmology and will cover optics, ocular anatomy, physiology, pathology, pharmacology, and numerous ophthalmic disease processes. Many outstanding guest speakers. Terms: 1, 2, 3, or 4. Weight: 1. Wadsworth, Staff, and Outside Contributors

OPH-211(C). Neuro-Ophthalmology. Experience is provided in application of ophthalmic diagnostic technique toward the diagnosis of central nervous system and related ocular diseases. Clinical case and research review is included. Special instrument utilization is emphasized. Terms: 1, 2, 3, or 4. Weight: 1 or 2. Anderson

OPH-213(C). Ophthalmic Pathology. The student will review all ophthalmic pathology specimens submitted weekly and any pertinent permanent specimens. He will aid in presentation of cases at weekly ophthalmic pathology conferences. Every term. Weight: 1. Wadsworth

OPH-215(C). Ocular Diseases in Children. The study of ocular disease in children includes muscular imbalances, congenital disorders, and neoplastic diseases to acquaint the student with a special pediatric and ophthalmologic phase. Terms: 1, 2, 3, or 4. Weight: 1. *Chandler*

Pathology

Professor: Thomas D. Kinney, M.D. (Duke, 1936), *Chairman and R. J. Reynolds Tobacco Company Professor of Medical Education.*

Professors: Bernard F. Fetter, M.D. (Duke, 1944); Donald B. Hackel, M.D. (Harvard, 1946); William W. Johnston, M.D. (Duke, 1959); Gordon K. Klintworth, M.D. (Univ. of Witwatersrand, S. Africa, 1957), Ph.D. (Univ. of Witwatersrand, 1966); Joachim R. Sommer, M.D. (Munich, 1951); Philip C. Pratt, M.D. (Johns Hopkins, 1944); F. Stephen Vogel, M.D. (Western Reserve, 1944); Benjamin Wittels, M.D. (Minnesota, 1952).

Associate Professors: William D. Bradford, M.D. (Western Reserve, 1958); Jane G. Elchlepp, M.D. (Chicago, 1955), Ph.D. (Iowa, 1948); Norman B. Ratliff, Jr., M.D. (Duke, 1962); C. Craig Tisher, M.D. (Washington Univ., 1961); Frances King Widmann, M.D. (Case Western Reserve, 1960).

Assistant Professors: Dolph O. Adams, M.D. (Med. Coll. of Georgia, 1965), Ph.D. (North Carolina, 1972); Darrell D. Bigner, M.D. (Duke, 1965), Ph.D. (Duke, 1971); Edward Bossen, M.D. (Duke, 1965); Peter Burger, M.D. (Northwestern, 1966); Charles A. Daniels, M.D. (Vanderbilt, 1966), Ph.D. (Duke, 1971); Frank Dorsey, Ph.D. (Duke, 1971); Jane Gaede, M.D. (Duke, 1966); Doyle G. Graham, M.D. (Duke, 1966), Ph.D. (Duke, 1971); Hal K. Hawkins, M.D. (Duke, 1972); Hugo O. Jauregui, M.D. (Univ. of Buenos Aires, 1963), Ph.D. (Duke, 1972); Ralph C. McCoy, M.D. (Emory, 1967); John Shelburne, M.D. (Duke, 1972), Ph.D. (Duke, 1971); George H. Spooner, Ph.D. (North Carolina, 1958); James W. Wilson, M.D. (Duke, 1967), Ph.D. (Kentucky, 1965); Peter Zwadyk, Ph.D. (Iowa, 1971).

Associates: Patricia Ruth Ashton, A.B. (Goucher College, 1963); Mary S. Britt, M.S. (Bowman Gray, 1969); John Harrelson, M.D. (Duke, 1965); J. E. Phillip Pickett, H.T.

Research Associates: Lieselotte Kemper, Eileen Mikat, M.A. (Duke, 1969); Donnie J. Self, Ph.D. (North Carolina, 1973).

Required Course

PTH-200—the core course in pathology—is given during the second term of the first year. Fundamentals of pathology are presented by correlating gross and microscopic material to illustrate the structural changes in disease. Lectures consisting of broad concepts of disease processes are presented by senior faculty and conferences with small groups of students are held under the guidance of staff members. Etiology and pathogenesis of disease as well as the experimental approach are emphasized for the purpose of correlation with clinical disease. In addition to group work, conferences are scheduled to discuss problems derived from autopsies. Students are required to collaborate in postmortem studies and present cases in clinical-pathologic conferences under the direction of the staff.

Electives

PTH-201(B). The Pathologic Basis for Clinical Medicine. Disease processes will be studied in terms of organ systems, with the intention of enabling students to crystallize the basic processes studied in Pathology 200. Clinico-pathologic correlation will be stressed, utilizing gross and microscopic examples of disease processes, case studies, lectures and demonstrations. Term: 1. Weight: 4. *Hackel*

PTH-203(B). Ophthalmic Pathology. This course is designed for students with an interest in ophthalmic diseases and particularly for those planning a career in pathology or ophthalmology, and will consist of lectures, seminars, and laboratory sessions. The normal anatomy and embryology of the eye will

be reviewed, and the various reactions of the eye to injury will be studied in gross and microscopic specimens. The more common diseases will be considered in detail. Term: 1. Weight: 3. *Klintworth*

PTH-209(B). Diagnostic Cytopathology. This course is designed to explore in detail the role played by clinical exfoliative cytopathology in the diagnosis of disease. Classroom and laboratory work will include diseases involving the female genital tract, upper and lower respiratory tract, urinary tract, body cavities, GI tract, and central nervous system. Emphasis will be on neoplastic disease. Practical application of the acquired knowledge will be made in examining current material. Microscopes required. Term: 1. Weight: 3. *Johnston and Stoff*

PTH-210(B). Basic Oncology. The student will work within the supervision of a faculty member in an area germane to the basic problems of cancer. The student must make appropriate arrangements through Dr. Johnston for faculty supervision prior to the beginning of the course. Term: 3. Weight: 8. *Johnston and Stoff*

PTH-223(B). Autopsy Pathology. The course is intended to introduce students to the autopsy as an investigative tool; anatomic-clinical correlation is emphasized. Students work directly with one or more members of the Pathology Department. They will first assist at autopsies and then perform a limited number of autopsies under supervision. They will work up these cases with particular attention to correlations with clinical and experimental medicine. Students will be expected to present their findings at staff conferences. Every term. Weight: 8. *Adams and Stoff*

PTH-225(B). Cardiovascular Pathology. Cardiovascular disease processes will be studied, reviewing anatomic, embryologic, and physiologic features, and utilizing case material and gross and microscopic specimens. Consideration will be given to the electrocardiogram. Term: 1. Weight: 2. *Hockel, Estes, Rotliff, and Wilson*

PTH-237(B). Surgical Pathology. This course is designed for the student who wishes more experience in the study of disease. Although the course is entitled Surgical Pathology, this does not imply interest solely in the individual oriented to surgery. Problems in dermatology, gynecology, orthopaedics, general surgery, internal medicine, and other specialties will be considered. The program of study will consist of lectures, demonstrations, and laboratory work. Microscope required (limited number available on loan). Term: 4. Weight: 4. *Fetter*

PTH-342(B). Special Topics in Pathology. Special problems in pathology will be studied with a member of the senior staff; the subject matter will be individually arranged. Every term. Weight: 1-8 per 8 weeks. *Kinney and Stoff*

***PTH-346(B). Subcellular and Molecular Pathology.** This course is designed for students wishing to broaden their knowledge of cellular structure and cellular pathology. Course consists of a series of lectures and seminars discussing the alterations in cellular structure and associated function that accompany cell injury. Terms: 1 and 2. Weight: 3. *Sommer*

PTH-348(B). Practical Surgery Pathology. This course will be in the form of an apprenticeship in which the student will become engaged in the actual preparation and diagnosis of tissue changes. Microscope required (limited number available on loan). Every term. Weight: 8. *Fetter and Stoff*

***PTH-352(B). Biochemical Pathology.** In a series of seminars, the morphology of several disease states will be integrated with their biochemical abnormalities. Utilization of experimental models on resolving the related problems in pathogenesis will be discussed. Disorders in lipid metabolism will be emphasized. Term: 2. Weight: 2. Wittels

***PTH-353(B). Advanced Neuropathology.** A review of neuropathology emphasizing correlation with problems of human disease. Term: 1. Weight: 3. Vogel and Stoff

PTH-359(B). Fundamentals of Electron Microscopy. Emphasis will be placed on the theory and application of electron microscopy to ultrastructural pathology. The methods relating to electron microscopy as well as phase and polarization microscopy will be considered. Term: 4. Weight: 2. Sommer, Shelburne, and Howkins

PTH-360(B). Histochemistry. Theoretical basis of methods for cellular and subcellular localization of chemical constituents. Lectures and laboratory sessions emphasizing modern techniques for tissue preservation and intracellular localization and identification of natural products and enzymes. Terms: 1 and 2. Weight: 3. Jouregui, Shelburne, Howkins, Doniels, Bossen, and McCoy

PTH-362(B). Pathology of the Kidney. This course is a comprehensive study of pathological, immunological and clinical features of the various types of glomerulonephritis, nephrotic syndrome, and pyelonephritis as well as of metabolic, congenital, and neoplastic renal disorders. Lectures will be supplemented with gross and microscopic specimens, demonstrations, and special library studies. Term: 2. Weight: 3. Tisher and McCoy

PTH-363(B). Seminars in Diseases of the Liver and Biliary Tract. This course covers the etiology, pathogenesis, and morphological aspects of liver and biliary tract diseases. Special emphasis will be placed on the discussion of liver function tests. A correlation with the clinical manifestations of these diseases will be the subject of weekly discussions with the participation of staff members of the Radiology and Surgery departments. Term: 4. Weight: 3. Jouregui

PTH-364(B). Orthopaedic Pathology. Special problems in orthopaedic pathology will be dealt with beginning with a discussion of the development of connective tissue with special emphasis on bone and muscle. Bone tumors, metabolic diseases, and traumatic problems will be considered. Term: 4. Weight: 2. Horrelson and Sommer

PTH-366(B). Pulmonary Pathology and Postmortem Pathophysiology. Emphasis will be on pulmonary pathology and pathophysiology of infectious, metabolic, environmental, and neoplastic diseases, and certain diseases of unknown etiology (e.g. sarcoid, alveolar proteinosis, etc.). Ventilatory experiments will be done on excised human lungs. Term: 2. Weight: 3. Pratt

PTH-368(B). Neonatal and Pediatric Pathology. This course covers the developmental anatomy and major pathologic processes of the brain, heart, lung, gastrointestinal, and urinary tracts. Emphasis is placed on clinico-pathologic correlation, and students assume responsibility for presentation of clinico-pathologic conferences, seminars, gross and microscopic laboratory materials. Designed for students entering clinical pediatrics and pathology. Term: 2. Weight: 3. Brodford and Wilson

PTH-372(B). Environmental Diseases. The course features guest lecturers and student presentations to cover examples of disease produced by techno-

logical exploitation of the earth, and "life style." Subjects include population, respiration-air and ocean, and examples of diseases due to asbestos, lead, mercury, hydrocarbons, carcinogens, organic dusts, DDT, cigarette smoke, etc. Term: 3. Weight: 2. Pratt and Lynn

PTH-374(B). Pulmonary Structure and Function Seminar. Current and exemplary pathological material on lungs, including gross, histologic, and electron microscopic data, is correlated with *in vitro* function and clinical features; physiological measurements; and roentgenographic findings. The structural features of the types of reaction of lung cells to injury are interpreted against this background. Such demonstration material is correlated by lectures. Every term. Weight: 1. Pratt and Lynn

PTH-375(B). Immunopathology. A study of the patho-anatomy of diseases of man in which the immune system plays an important role, including auto-immune diseases, the "collagen" diseases, graft rejection, and immunologic aspects of cancer. The format will consist of a series of lectures on the clinico-pathological changes seen in immunopathological diseases of man. Term: 4. Weight: 1. Daniels, Adams, Bigner, Bossen, and McCoy

PTH-376(B). Pathology of Virus Infections. In this course the pathological effects of viruses will be discussed. The format will consist of a series of student-conducted lectures and seminars. The clinical, pathological, immunological, and epidemiological aspects of human virus diseases will be stressed. Terms: 1 and 2. Weight: 3. Daniels, Bradford, and Bigner

PTH-377(B). Seminar in Experimental Cardiovascular Pathology. Experimental models of cardiovascular disease which are of current clinical interest will be discussed in a seminar format with active student participation. Cardiologists from the catheterization laboratory will be invited to participate in discussions of pathophysiology. Term: 2. Weight: 2. Ratliff

PTH-378(B). Seminars in Hematology. This is a systematic survey of the pathophysiology and morphology of human hematological diseases. Each student will survey the literature on several topics and prepare an oral presentation which will be critically discussed by the group. Opportunity for experience in blood, marrow, and lymph node analysis will be available. Terms: 3 or 4. Weight: 2. Wittels

***PTH-411(B). Molecular and Cellular Bases of Development and Differentiation.** This course is the lecture and seminar series of the Development and Differentiation Study Program, DDS-201(B), without the laboratory of that course. See DDS-201(B) for the objectives and description. Terms: 1 and 2. Weight: 3-4. McCarty, Counce, Padilla, Harris, Sommer, Moses, Kaufman, Johnson, and Vanaman

Pediatrics

Wilburt C. Davison Professor: Samuel L. Katz, M.D. (Harvard), 1952), Choirmon. Professors: Jay M. Arena, M.D. (Duke, 1932); Susan C. Dees, M.D. (Johns Hopkins, 1934); William J. A. DeMaria, M.D. (Duke, 1948); Thomas E. Frothingham, M.D. (Harvard, 1951); Herman Grossman, M.D. (Columbia, 1953); James B. Sidbury Professor Jerome S. Harris, M.D. (Harvard, 1933); F. Stanley Porter, M.D. (Johns Hopkins, 1952); James B. Sidbury, Jr., M.D. (Columbia, 1947); Madison S. Spach, M.D. (Duke, 1954).

Associate Professors: Roger C. Barr, Ph.D. (Duke, 1968); George W. Brumley, Jr., M.D. (Duke, 1960); Rebecca H. Buckley, M.D. (North Carolina, 1958); John F. Griffith, M.D. (Saskatchewan, 1958); Marcel Kinsbourne, B.M. (Guy's Hospital, London, 1955), D.M. (Oxford Univ., England, 1963); David J. Lang, M.D. (Harvard, 1958); A. W. Renuart, M.D. (Duke, 1955); Donald Silver, M.D. (Duke, 1955); Alexander Spock, M.D. (Maryland, 1955).

Assistant Professors: Page A. W. Anderson, M.D. (Duke, 1963); Lillian Blackmon, M.D. (Arkansas, 1963); William D. Bradford, M.D. (Western Reserve, 1958); M. C. Crenshaw, Jr., M.D. (Duke, 1956); John A. Fowler, M.D. (Bowman Gray, 1946); Laura Gutman, M.D. (Stanford, 1963); Stuart Handwerker, M.D. (Maryland, 1964); Harold J. Harris, M.D. (Long Island Coll. of Medicine, Brooklyn, 1949); J. David Jones, M.D. (Duke, 1954); Ronald P. Krueger, M.D. (Duke, 1965); Frederick Meine, M.D. (Temple, 1966); Lois A. Pounds, M.D. (Pittsburgh, 1965); Charles R. Roe, M.D. (Duke, 1964); Malcolm H. Rourk, Jr., M.D. (Pennsylvania, 1963); Catherine M. Wilfert, M.D. (Harvard, 1962).

Associates: Ann Alexander, M.D. (Duke, 1966); Drew Edwards, Ph.D. (Florida State, 1972); Anne H. Koons, M.D. (Temple, 1967); Deborah Kredich, M.D. (Michigan, 1962); Shirley K. Osterhout, M.D. (Duke, 1957).

Clinical Professor: A. H. London, M.D. (Pennsylvania, 1927).

Associate Clinical Professors: William L. London, M.D. (North Carolina, 1955); George M. Lyon, M.D. (Duke, 1961); Theodore Scurletis, M.D. (Pittsburgh, 1951); Bailey D. Webb, M.D. (Duke, 1946), Ph.D. (North Carolina, 1941).

Assistant Clinical Professors: Charles B. Neal, M.D. (Duke, 1955); A. Douglas Rice, M.D. (Duke, 1951); Evelyn Schmidt, M.D. (Duke, 1951); S. Winston Singleton, M.B. (Manchester, England, 1952); W. Samuel Yancy, M.D. (Duke, 1965).

Clinical Associates: Lillis Altshuller, M.D. (Cincinnati, 1960); Clarence Bailey, M.D. (North Carolina, 1958); W. A. Cleland, M.D. (Howard, 1933); Nelle S. Moseley, M.D. (Med. Coll. of Georgia, 1957); James B. Rouse, M.D. (Duke, 1965); Martha Valiant, M.D. (Duke, 1969); Joseph Whatley, M.D. (Duke, 1958).

Required Course

PED-200—the basic course in pediatrics for all students—is an eight week clerkship in the second year. Its principal aim is to provide the student with an exposure to the field of pediatrics. Although it is impossible in so brief a period of time to examine it in depth, the student is exposed to a varying series of experiences which should give him a grasp of the concepts that underlie the discipline. His goals should be to acquire familiarity and competence with the basic tools of information-gathering—the history, physical examination, and laboratory data—and to develop an approach to the integration of this material for the solution of problems of health and illness in infancy and childhood. This should be accomplished with continuing reference to the basic principles of pathophysiology encountered in his first year courses.



Those patients to whom the student is assigned will provide the focus for his studies. In addition to the careful history and physical examination which he records, the student is expected to organize an appropriate differential diagnosis and to seek and read pertinent reference material relevant to his patients. He should learn to present each case verbally in an organized and succinct fashion, to follow the progress of his patients and to interpret all studies which are performed. The student is expected to learn from a number of sources: standard textbooks and journals, current publications and conferences, and also from people—house staff, faculty, nurses, parents, and all others with whom he has contact in the study of his patients.

His objectives should also include an understanding of the roles played in pediatrics by other members of the health care team, both in the ambulatory and hospital settings. Patient care will include nurse, social worker, recreation therapist, psychologist, physiotherapists, dietitian, and/or others. His eight weeks will be divided so that his experience will include time in two of the following settings: outpatient clinics and emergency room, Howland Ward, nurseries (full term and intensive care), and a community hospital (Watts). Usually, it is possible to schedule some of these assignments to meet student preference.

Electives

PED-201(C). General Pediatrics. Student is assigned to the ward, ambulatory services, and/or nurseries according to his interests and goals. In general, he will have an intensive apprenticeship in pediatrics with learning experiences stemming directly from the patient and his problems. Students wishing to take Pediatrics 201(C) must arrange first with Dr. Ronald Krueger and/or Dr. Lois Pounds the format of their experience. This is to be done well in advance of the term in which the course will be taken. The experience may be entirely inpatient, outpatient, or a mixture of both. Planning is essential so that the term meets the student's needs but does not crowd the available learning space. Every term. Weight: 8. *Katz and Pediatric Staff*

PED-202(C). Pediatric Infectious Diseases. This course will provide experience in the clinical and laboratory diagnosis of infectious diseases and in their therapy. The student works closely with the infectious disease fellow and participates actively in evaluation of patients. There is opportunity to gain experience in a laboratory setting (bacteriology and virology). Every term. Weight: 8. *Frothingham, Gutman, Katz, Lang, Wilfert, and Staff*

PED-203(C). Pediatric Neurology. Student will examine patients with neurological and convulsive disorders in the wards and clinics of Duke Hospital, at the Lenox D. Baker Cerebral Palsy Hospital, the developmental evaluation clinic, and in the inpatient facilities of the Murdoch Center. Emphasis is placed on the neurological examination, investigation, and management of acute and chronic nervous system disorders of childhood. Research opportunities are also available for the interested student. Terms: 1, 2, 3, or 4. Weight: 8. *Griffith, Kinsbourne, Renuart, and Staff*

PED-215(C). Metabolic and Endocrine Disorders in Children. Outpatient and inpatient study of a variety of metabolic disorders. Student sees clinical endocrine patients by participation in pediatric endocrine clinics. Stress is placed upon application of hormone assay to the diagnosis of endocrine disorders in childhood. Every term. Weight: 8. *Sidbury, Handwerker, Roe, and Moseley*

PED-217(C). Pediatric Hematology and Oncology. Includes all aspects of

clinical and laboratory pediatric hematology as well as the diagnostic evaluation, care, and treatment of patients with malignant diseases. Emphasis will be placed on fundamental concepts. There will be daily ward rounds, a weekly clinic, weekly slide conferences, and weekly seminars, as well as assigned reading. Students will be encouraged to engage in some individual clinical or laboratory project during the period of the course. Every term. Weight: 8. Porter and Lyon

PED-221(C). Poison Control. Student may participate in the clinical functions of the Center. He will be on call for the treatment of these cases in the Emergency Room or ward at his discretion. One two-hour conference per week will be scheduled for student discussion of assigned topics. Terms: 1, 2, 3, or 4. Weight: 2. Shirley Osterhout

PED-223(C). The Pediatrician in the Community. Beyond the walls of the hospital and medical center, the pediatrician performs a number of services. He may conduct a private office practice the leadership of which demands high competence in the art and science of medicine and continuing imaginative adaptation to changing patterns of community health problems. He must assume a central role as the child's advocate in connection with pressures from enthusiasts for particular child-rearing practices. As a consultant, he may profoundly influence for better or worse local school, health department, and service-organization programs. In the care of patients with developmental disability he must know how to work with a wide variety of specialized professionals in order to achieve the best possible diagnosis and management of these complex problems. We hope to introduce the student to these matters through discussions with faculty, reading, and observation of professionals at work in the areas mentioned above. The student is encouraged to select areas for indepth examination and active participation according to his interests, background, and anticipated career goals. Every term. Weight: 6. Frothingham

PED-225(C). Neonatology. Students will have patient care responsibilities and experiences in the full term newborn and intensive care nurseries. Included will be discussions of prenatal hazards, resuscitation, care of the normal newborn and premature infant. Emphasis is placed on the initiation of parent-child relationships and the management of the normal and stressed neonate. Every term. Weight: 8. Brumley, Blackmon, and Koons

PED-227(C). Behavioral Aspects of Pediatric Illness. The purpose of this course is to introduce the student to the emotional aspects of sick children. Experience will include the impact on the family as well as the psychic and somatic adjustments of the child. (See also PSC-227C). Terms: 1, 2, 3, or 4 and summer. Weight: 3-6. Jones, Edwards, and Ms. Driscoll

PED-233(C). Allergy, Clinical Immunology, and Pulmonary Diseases. Clinical evaluation and practice in use of methods of diagnosis and treatment of allergic disorders, cystic fibrosis and other pulmonary diseases, immunologic deficiency states and autoimmune disorders. Scope: history, physical examination, skin and pulmonary function tests, allergen preparation, sweat testing, and a variety of clinical immunologic tests. Every term. Weight: 8. Dees, Spock, R. Buckley, and Rourk

PED-239(C). Perinatal Medicine. A study of factors during pregnancy, labor, delivery, and the first month of life. Emphasis will be placed on abnormal conditions of pregnancy as related to the infant, prenatal pathological conditions adversely afflicting the fetus and newborn, and early management of the infant. Current problems in maternal-fetal relationships

will be outlined. The clinical rotation will consist of half time in the delivery room and half time in the nursery. (See also OBG-239C). Every term. Weight: 8. *Brumley and Crenshaw*

PED-241(C). Pediatric Nephrology. Course is designed to provide experience in diagnosis, natural history and treatment of acute and chronic disorders of the kidney in children. Students are also exposed to the management of fluid and electrolyte disorders in infants and children. Every term. Weight: 6-8. *DeMaria and Krueger*

PED-243(C). Adolescent Medicine. Students will see adolescents in outpatient clinic. Emphasis to be placed on the behavioral and developmental aspects of adolescence, drug abuse, and the pregnant teenager. Tutorial and supervisory time to discuss specific patients and pertinent literature will be arranged. Every term. Weight: 2. *Yancy*

Physiology and Pharmacology

Professor: Daniel C. Tosteson, M.D. (Harvard, 1949), Chairmon.

Professor: Toshio Narahashi, Ph.D. (Univ. of Tokyo, 1960), Vice Chairmon.

DIVISION OF PHYSIOLOGY

Associate Professor: John V. Salzano, Ph.D. (Iowa, 1956), *Head of Division.*

James B. Duke Professor: Daniel C. Tosteson, M.D. (Harvard, 1949).

Professors: Jacob J. Blum, Ph.D. (Chicago, 1952); Irving T. Diamond, Ph.D. (Chicago, 1953); Frans F. Jobsis, Ph.D. (Michigan, 1958); Edward A. Johnson, M.D. (Univ. of Sheffield, 1953); John W. Moore, Ph.D. (Virginia, 1954); Eugene M. Renkin, Ph.D. (Harvard, 1951); George G. Somjen, M.D. (New Zealand, 1961).

Visiting Professor: Donald L. Fry, M.D. (Harvard, 1949).

Associate Professors: Robert P. Erickson, Ph.D. (Brown, 1958); Robert E. Fellows, M.D. (McGill, 1959), Ph.D. (Duke, 1969); Peter K. Lauf, M.D. (Univ. of Freiburg, 1960); Thomas J. McManus, M.D. (Boston, 1955); George M. Padilla, Ph.D. (California at Los Angeles, 1960); John V. Salzano, Ph.D. (Iowa, 1956).

Assistant Professors: Nels C. Anderson, Ph.D. (Purdue, 1964); Reginald Carter, Ph.D. (Bowman Gray, 1970); Balz F. Gisin, Ph.D. (Univ. of Basel, 1967); Robert B. Gunn, M.D. (Harvard, 1966); John Gutknecht, Ph.D. (North Carolina, 1963); James E. Hall, Ph.D. (California at Riverside, 1968); Franklin G. Hempel, Ph.D. (Texas, 1969); R. Gary Kirk, Ph.D. (Yale, 1969); J. Mailen Kootsey, Ph.D. (Brown, 1966); Melvyn Lieberman, Ph.D. (State Univ. of New York, Downstate Med. Center, 1964); Lazaro J. Mandel, Ph.D. (Pennsylvania, 1969); Lorne Mendell, Ph.D. (Massachusetts Inst. of Tech., 1965); Elliott Mills, Ph.D. (Columbia, 1964); Thomas T. Norton, Ph.D. (California, 1970); Theo Pilkington, Ph.D. (Duke, 1963); Myron Rosenthal, Ph.D. (Duke, 1969); James M. Schooler, Jr., Ph.D. (Wisconsin, 1964); Howard Wachtel, Ph.D. (New York Univ., 1967).

Clinical Professor: Ernest Schoffeniels, M.D. (Univ. of Liège, 1953).

Associate Clinical Professors: James Clapp, M.D. (North Carolina, 1957); J. A. Kylstra, M.D. (Leiden, Netherlands, 1952); Myron Wolbarsht, Ph.D. (Johns Hopkins, 1958).

Assistant Clinical Professors: Wesley A. Cook, Jr., M.D. (Oregon, 1963); Antonio V. Escueta, M.D. (Univ. of Santo Tomas, Manila, 1963); Joseph Greenfield, M.D. (Emory, 1956); Harold E. Lebovitz, M.D. (Pittsburgh, 1956); Daniel Riddick, M.D. (Duke, 1967), Ph.D. (Duke, 1969); Aaron P. Sanders, Ph.D. (North Carolina, 1964); David W. Schomberg, Ph.D. (Purdue, 1965); Jones R. Scott, M.D. (Texas, 1961); Andrew G. Wallace, M.D. (Duke, 1959); William E. Yarger, M.D. (Baylor, 1963).

DIVISION OF PHARMACOLOGY

Associate Professor: Daniel B. Menzel, Ph.D. (California at Berkeley, 1962), *Head of Division.*

James B. Duke Professor: Frederick Bernheim, Ph.D. (Cambridge, 1928).

Professors: Leon Lack, Ph.D. (Columbia, 1953); Toshio Narahashi, Ph.D. (Univ. of Tokyo, 1960); Saul M. Schanberg, M.D. (Yale, 1965), Ph.D. (Yale, 1961).

Associate Professors: Daniel B. Menzel, Ph.D. (California at Berkeley, 1962); Athos Ottolenghi, M.D. (Univ. of Pavia, 1946).

Assistant Professors: Gerald M. Rosen, Ph.D. (Clarkson Coll. of Tech., 1969); Theodore Slotkin, Ph.D. (Rochester, 1970).

Clinical Professors: McChesney Goodall, Jr., M.D. (Med. Coll. of Virginia, 1948), Ph.D. (Karolinska Inst., 1951); George H. Hitchings, Ph.D. (Harvard, 1933); Charles A. Nichol, Ph.D. (Wisconsin, 1949); Robert A. Maxwell, Ph.D. (Princeton, 1954).

Associate Clinical Professors: Gertrude B. Elion, D.Sc. (George Washington, 1969); Herbert Posner, Ph.D. (George Washington, 1958); Madison Spach, M.D. (Duke, 1954); Richard M. Welch, Ph.D. (Jefferson Med. Coll., 1962).

Assistant Clinical Professors: G. Douglas Blenkarn, M.D. (Univ. of Toronto, 1958); Ronald Yan-li Chuang, Ph.D. (California at Davis, 1970); Howard L. Elford, Ph.D. (Cornell, 1962); Everett Ellinwood, M.D. (North Carolina, 1959); Robert O. Friedel, M.D. (Duke, 1964).

Required Courses

PHS-200—Introduction to the Physiology of Man—lectures and conferences on organ physiology are given after an introductory presentation of the basic principles of cell physiology. Human and medical aspects are stressed particularly in the clinical conferences and the laboratory experience. The neurophysiology section is given in a three week period following the end of the semester. Limited to students whose training requires knowledge of human physiology as it pertains to medicine. Three lectures, two conferences (one of which is clinical), and one laboratory per week. Prerequisites: permission of the course leader. Term: fall. 7 units. *Jöbsis and Staff*

PHS-250—Pharmacology: Mode of Action of Drugs—studies and discussion of the pharmacological action of drugs in terms of biochemical and physiological processes. Three lectures and one conference per week. Prerequisite: PHS-200 or equivalent. Term: spring. 4 units. *Menzel and Staff*

PHS-280—Student Seminar in Physiology and Pharmacology—preparation and presentation of seminars to students and faculty on topics of broad interest to physiology and pharmacology. Required of all physiology and pharmacology graduate students. Terms: fall and spring. 2 units. *Gunn*

Electives

PHS-205(B). Peripheral Circulation in Health and Disease. Topics in physiology and pharmacology of peripheral circulation. Analysis and evaluation of experimental and clinical studies relating to selected diseases of the circulation. Not offered for graduate school credit. Term: 2. Weight: 1. *Renkin and Mills*

PHS-207(B). The Heart in Health and Disease. Physiology and Pharmacology at the organ systems level, including cardiac electrophysiology and mechanics, arrhythmias, ventricularatrial function, congenital disordered function, coronary blood flow, and cardiovascular control mechanisms. Not offered for graduate school credit. Term: 1. Weight: 1. *Johnson, Renkin, Mills, Wallace, Greenfield, Spach, McHale, and Anderson*

***PHS-208(B). Respiratory System in Health and Disease.** Primary emphasis is on the physiology of respiration. Topics covered include pulmonary mechanics, gas exchange, ventilation-perfusion relationships, central and peripheral regulation of ventilation and respiratory responses to exercise, altitude and hyperbaric environment. Terms: 3 and 4. Weight: 2. *Salzano and Kylstra*

***PHS-212(B). Membrane Physiology and Osmoregulation.** Physiology of aquatic organisms, with emphasis on membrane transport processes and electrophysiology. The course will include lecture and laboratory work on the functions, mechanisms, and comparative aspects of ionic and osmotic regulation in plants and animals. Term: summer. Weight: 9. *Gutnecht, Wachtel, Kirshner, and Staff*

***PHS-215(B). Topics in Developmental Physiology and Pharmacology.** An analysis of physiological basis of development at the organ level with special reference to vertebrates. Topics will include development of neuronal, connections, cardiogenesis, hormonal regulation, and pharmacological interactions in organogenesis. Terms: 3 and 4. Weight: 2. *Mendell, Lieberman, and Padilla*

***PHS-216(B). Contractile Processes.** Cellular and molecular bases of activity in cilia and skeletal, cardiac and smooth muscle; submicroscopic structure and behavior of muscle; electrical and ionic properties of muscle membranes; the problem of electro-mechanical coupling; mechanics and thermodynamics of muscular contraction; biochemical energies of contraction; modern methods and problems in contractility research. Also listed as *ANA-215(B). Terms: 1 and 2. Weight: 3. *Jobsis, Johnson, Anderson, and Reedy*

***PHS-217(B). Membrane Transport Processes in Physiology and Pharmacology.** Chemical composition and ultrastructure of biological membranes, ionic and osmotic equilibria across the membranes of individual cells, passive and active ionic transport, the role of ATPase, carrier-mediated diffusion of anions and non-electrolytes, integration of transport processes to produce molecular movements across organized epithelia (e.g. amphibian skin and bladder, gastrointestinal mucosa). Terms: 1 and 2. Weight: 3. *Gunn, Gutknecht, Kirk, Lauf, Mandel, McManus, and Tosteson*

PHS-219(B). Tutorial in Physiology and Pharmacology. Guided independent study of original literature and/or laboratory experience. Open to all students; required of those electing a preclinical base in the Department of Physiology and Pharmacology. Every term. Weight: 3 per 8 weeks. *Gunn and Staff*

PHS-223(B). Biological Correlates of Behavior. A survey of current concepts of genetic, anatomical, physiological, neurochemical and pharmacological factors affecting perception, cognition, feeling states, states of awareness, and memory is presented. The course includes an analysis of autonomic nervous system conditioning and an introduction to psychophysiological methods. The course also involves laboratory demonstrations, experiments and discussions of principles presented in lectures. Also listed as PSC-223 (B). Terms: 1 and 2. Weight: 4. *Friedel and Staff*

***PHS-254(B). Mammalian Toxicology.** Principles of toxicology as related to man. Emphasis will be placed on the molecular basis for toxicity of chemical and physical agents. Subjects will include the limitations and assumptions of extrapolation to man from animal toxicity, safety of drugs and food additives, toxicity of pesticides and their hazard to man, and the role of scientists in societal decisions on the use of man-made chemical and physical agents. Terms: 1 and 2. Weight: 3. *Menzel and Staff*

***PHS-256(B). Human Nutrition.** Nutrition principles with emphasis on physiology and pharmacology. Topics will include the chemical basis for nutrient requirements, application to practical diets, parenteral nutrition, influence of dietary intake on disease (cardiovascular disease, diabetes, and inborn errors of metabolism), optimal dietary intake, impact of food technology on human nutrition, growth, maturation, lactation, and their requirements and recent advances in micronutrient requirements. Terms: 1 and 2. Weight: 2. *Menzel*

***PHS-320(B). Gastrointestinal Physiology.** In this course the normal physiology, mechanisms of control, and transport characteristics of the human

gastrointestinal tract and its associated glands (salivary, pancreas, liver) are presented in a series of lectures, problems, and demonstrations. The mechanisms of secretion and reabsorption are treated at a cellular level. Problems focus on quantitation of gastrointestinal function. See *PHS-321(B). Term: 3. Weight: 2. Gunn, Scott, Jones, and Stoff

***PHS-321(B). Renal Physiology.** The composition and size of body fluid compartments and the regulation of the constituents of the plasma by the kidney is presented by lectures, problems, and demonstrations. Measurements of renal function including renal blood flow, tubular reabsorption and secretion and acid-base regulation are discussed together with the theory of counter current exchange, ion transport in the kidney and hormonal control of renal function. Together with *PHS-320(B), this course is a continuation of PHS-217(B), Membrane Transport Processes. Term: 4. Weight: 2. Tosteson, Yarger, and Clapp

***PHS-325(B). Microcirculation: Rheology and Transport.** Lectures and conferences on microvascular flow and its control, mechanics of blood plasma, blood cells and tissues, and blood-tissue exchange of materials. Terms: 3 and 4. Weight: 2. Renkin and Evons

***PHS-330(B). Pharmacological Basis of Clinical Medicine.** This course consists of a detailed analysis of the mechanism of action and rationale for use of pharmacologic agents in disease states. Terms: 1 and 2. Weight: 4. Schanberg and Staff

***PHS-331(B). Laboratory Methods in Pharmacology.** Tutorial laboratory training will be given in various fields of pharmacology, including neuropharmacology, cardiovascular pharmacology, biochemical pharmacology and biophysical pharmacology. Certain special laboratory sessions will be conducted at the Wellcome Research Laboratories, Research Triangle Park. Every term. Weight: 3 per 8 wks. Norohoshi, Moxwell, and Staff

***PHS-334(B). Pharmacodynamics.** This course will introduce the student to the fundamentals of physical processes in biological systems as they pertain to drug action. Specific topics will include pharmacokinetics, drug absorption, distribution, metabolism and excretion, receptor theory, Hansch correlation of molecular structure with biological activity, and molecular orbital theory. Terms: 1 and 2. Weight: 3. Rosen and Slotkin

***PHS-372(B). Research in Physiology and Pharmacology.** Laboratory investigation in various areas of physiology and pharmacology. Every term. Weight: 2-8 per 8 weeks. Gunn and Stoff

***PHS-393(B). Integrative and Clinical Neurophysiology and Neuropharmacology.** Aspects of the physiology and pharmacology of the central nervous system in health and in disease: sensory coding; reflex functions; motor control; effects of drugs on the central nervous system; physiological aspects of memory. Terms: 3 and 4. Weight: 3 or 4. Somjen and Stoff

***PHS-395(B). Biochemical Pharmacology.** Emphasis on mechanism of action of drugs in the areas of (1) metabolism and toxicology; (2) antibiotics; (3) steroids; (4) antimetabolites and oncolytic agents; (5) embryology and development; (6) hematopoietic system and porphyrins; (7) lipids and carbohydrates; (8) membrane structure and function; (9) ground substance (mesenchyme). Lectures will be selected from the above areas and will correlate the material in terms of clinical significance. (See also *BCH-395B.) Terms: 1 and 2. Weight: 1 per 8 weeks. Lock, Posner, Elford, Kirshner, Kamin, Hitchings, Elion, Welch, Appel, Rosse, and Nichol

***PHS-401(B). Metabolic and Developmental Physiology and Pharmacology.** Cell division and control of the cell cycle; population dynamics; physiology of subcellular organelles such as nuclei, mitochondria, lysosomes, and peroxisomes; metabolic regulation with respect to temperature adaptation and to variations in exogenous substrates; control of development and differentiation in eukaryotic cells. Terms: 1 and 2. Weight: 3. *Blum, Padilla, and Staff*

***PHS-411(B). Molecular and Cellular Bases of Development and Differentiation.** This course is the lecture and seminar series of the development and differentiation study program, DDS-201(B), without the laboratory of that course. See DDS-201(B) for the objectives and description. Terms: 1 and 2. Weight: 3-4. *McCarty, Counce, Padilla, Harris, Sommer, Moses, Kaufman, Johnson, and Vanaman*

***PHS-415(B). Physiological Instrumentation.** Electronic methods of measurement of physiological variables. The operational amplifier is used as the active building block in appropriate feedback circuits containing only passive elements to make a wide range of linear instruments including analog computers. Digital logic and computing elements are also developed. Terms: 3 and 4. Weight: 3. *Moore and Staff*

***PHS-416(B). Neuronal Physiology and Pharmacology.** Structure and function of excitable membranes; impulse generation and conduction in different kinds of nerves; effects of pharmacological agents on electrical properties; physiological and pharmacological aspects of synaptic and neuromuscular transmission; biophysics of receptor cells. Terms: 1 and 2. Weight: 3. *Narahashi and Staff*

***PHS-417(B). Cellular Endocrinology.** Current concepts of the mechanism of action of hormones at the cellular level, including hormone-receptor interactions; secondary messengers; regulation of protein synthesis; growth and differentiation; control of salt and water balance; regulation of substrate storage and mobilization; and modulation of hormone secretion. Terms: 1 and 2. Weight: 2. *Fellows, Lebovitz, and Handwerker*

***PHS-418(B). Reproductive Biology.** An in-depth study of male and female reproductive processes including neuroendocrine, pituitary and gonadal control mechanisms and the physiology of pregnancy and parturition. (Also listed as *ANA-418B.) Terms: 3 and 4. Weight: 2. *Anderson, Everett, Schomberg, Blake, and Tyrey*

Psychiatry

J. P. Gibbons Professor: Ewald W. Busse, M.D. (Washington Univ., 1942), *Chairman*.

DIVISION OF CHILD PSYCHIATRY

Professor: John A. Fowler, M.D. (Bowman Gray, 1946), *Head of Division*.

Visiting Research Professor: Robert Coles, M.D. (Columbia, 1954).

Associate Professors: Ila H. Gehman, Ed.D. (Pennsylvania, 1947); Harold J. Harris, M.D. (Long Island Med. Coll., 1949); J. David Jones, M.D. (Duke, 1954); Charles R. Keith, M.D. (Harvard, 1961).

Assistant Professors: Marcelino Amaya, M.D. (Univ. Nacional Autónoma de México, 1954); William B. Anderson, M.D. (Minnesota, 1948).

Assistant Clinical Professors: Thomas M. Haizlip, M.D. (North Carolina, 1958); Preston A. Walker, M.D. (Med. Coll. of South Carolina, 1959).

Clinical Associate: Lucy T. Davis, Ed.D. (Columbia, 1955).

DIVISION OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY

Professor: William P. Wilson, M.D. (Duke, 1947), *Head of Division*.

Professor: Everett H. Ellinwood, Jr., M.D. (North Carolina, 1959).

Geropsychiatry

Professors: Eric A. Pfeiffer, M.D. (Washington Univ., 1960); Adriaan Verwoerd, M.D. (Med. School of Amsterdam, 1952).

Associate Professors: Daniel T. Gianjurco, M.D. (Buffalo, 1960); Hsioh-shan Wang, M.D. (National Taiwan Univ., 1953).

Assistant Professors: Daniel T. Peak, M.D. (Wisconsin, 1959); Dietolf Ramm, Ph.D. (Duke, 1969); Alan D. Whanger, M.D. (Duke, 1956).

DIVISION OF HIGHLAND HOSPITAL

Associate Professor: Charles W. Neville, Jr., M.D. (Vanderbilt, 1956), *Head of Division*.

Associate Professor: Duilio Giannitrapani, Ph.D. (Clark, 1953).

Assistant Professors: Marie Baldwin, M.D. (Med. Coll. of South Carolina, 1929); Jack W. Bonner, M.D. (Southwestern, 1965); Hal G. Gillespie, M.D. (Med. Coll. of South Carolina, 1964); Duane Green, Ph.D. (Univ. of Southern California, 1972); Dale T. Johnson, Ph.D. (Vanderbilt, 1966); Leo Potts, M.D. (Adelaide, Australia, 1955).

Associates: Joyce Bracewell, M.S.W. (Florida State, 1964); Thomas R. Fashingbauer, Ph.D. (North Carolina, 1973); Harold G. Gollberg, M.D. (Texas, 1966); James C. Green, M.D. (Illinois, 1965); Gitta W. Jackson, M.D. (Duke, 1968); Anne E. Sagberg, M.D. (Oslo, 1947); Thomas A. Smith, M.D. (Tennessee, 1955).

Instructors: Thomas J. DeMartini, M.S.W. (Tulane, 1971); Terrold W. Fox, M.S.W. (Florida State, 1965); Joan S. Grimes, M.S.W. (North Carolina, 1970); George B. Ingle, Jr., M.S.W. (Tulane, 1971); Helen G. Johnson, M.S.W. (Pittsburgh, 1946); Shirley C. Singleton, M.S.W. (Michigan, 1958); Olin D. Wilson, M.S.W. (Florida State, 1968).

DIVISION OF INPATIENT SERVICES

Professor: Frederick R. Hine, M.D. (Yale, 1949), *Head of Division*.

Professors: Bernard Bressler, M.D. (Washington Univ., 1942); Hans Lowenbach, M.D. (Hamburg Univ., 1930); John M. Rhoads, M.D. (Temple, 1943).

Associate Professors: Robert O. Friedel, M.D. (Duke, 1964); George A. Silver, M.D. (Duke, 1938).

Assistant Professors: Johnnie L. Gallemore, Jr., M.D. (Emory, 1964); Z. Daniel Pauk, M.D. (Iowa, 1956).

Assistant Clinical Professors: Martin G. Groder, M.D. (Columbia, 1964); Pedro J. Irigaray, M.D. (Univ. of Mexico, 1955).

Instructor: Walter A. Scarborough, Jr., M.D. (Duke, 1967).

DIVISION OF MEDICAL PSYCHOLOGY

Associate Professor: W. Doyle Gentry, Ph.D. (Florida State, 1969), *Head of Division*.

Professors: Irving E. Alexander, Ph.D. (Princeton, 1949); Lloyd J. Borstelmann, Ph.D. (California at Berkeley, 1950); Robert C. Carson, Ph.D. (Northwestern, 1957); Edward Clifford, Ph.D. (Minnesota, 1954); Herbert F. Crovitz, Ph.D. (Duke, 1960); Martin Lakin, Ph.D. (Chicago, 1955); Walter D. Obrist, Ph.D. (Northwestern, 1950); Larry W. Thompson, Ph.D. (Florida State, 1961).

Associate Professor: Arnold D. Krugman, Ph.D. (Kentucky, 1952).

Assistant Professors: Hugh V. Angle, Ph.D. (Texas Christian, 1969); Elaine K. Crovitz, Ph.D. (Duke, 1964); C. Drew Edwards, Ph.D. (Florida State, 1972); Mary M. Huse, Ph.D. (Duke, 1959); M. Marlyne Kilbey, Ph.D. (Houston, 1969); Irwin Kremen, Ph.D. (Harvard, 1961); Gail R. Marsh, Ph.D. (Iowa, 1968); Gerard J. Musante, Ph.D. (Tennessee, 1971); Robert D. Nebes, Ph.D. (California Inst. of Tech., 1971); David W. Novak, Ph.D. (Kentucky, 1968); Susan S. Schiffman, Ph.D. (Duke, 1970); W. Derek Shows, Ph.D. (Duke, 1967); Russell F. Tomlinson, Ph.D. (Florida, 1957).

Associates: Charles D. Gasswint, Ph.D. (Oklahoma, 1968); Cebun Gaustad, Ph.D. (North Carolina, 1970); Paul M. Kirwin, Ph.D. (Texas, 1968); Richard A. Lucas, Ph.D. (North Carolina, 1972); Linda C. Wyrick, Ph.D. (Arizona, 1971).

Clinical Associate: Manuel H. Edquist, Ph.D. (Duke, 1972).

DIVISION OF MEDICAL SOCIOLOGY

Professor: George L. Maddox, Ph.D. (Michigan, 1956), *Head of Division*; Director, Center for the Study of Aging and Human Development

Professors: Kurt W. Back, Ph.D. (Massachusetts Inst. of Tech., 1949); John C. McKinney, Ph.D. (Michigan State, 1953); Erdman B. Palmore, Ph.D. (Columbia, 1959).

Associate Professor: Jacquelyne J. Jackson, Ph.D. (Ohio State, 1960).

Assistant Professor: Mary Lee Brehm, Ph.D. (North Carolina, 1966).

Research Associates: Gerda G. Fillenbaum, Ph.D. (London, 1966); Edward N. Hobson, Ph.D. (Florida State, 1970).

DIVISION OF OUTPATIENT SERVICES

Associate Professor: Charles E. Llewellyn, Jr., M.D. (Med. Coll. of Virginia, 1946), *Head of Division*.

Assistant Professors: James H. Carter, M.D. (Howard, 1966); John G. Giragos, M.D. (American Univ. of Beirut, 1963); David M. Hawkins, M.D. (Duke, 1966); Kenneth Rockwell, M.D. (Duke, 1961).

Associate: Soong H. Lee, M.D. (Seoul National Univ., 1963).

Instructor: Allan A. Maltbie, M.D. (Emory, 1969).

DIVISION OF PSYCHOSOMATIC MEDICINE

Associate Professor: Marianne S. Breslin, M.D. (Medical Academy, Duesseldorf, Germany, 1946), *Head of Division*.

Professor: Joseph B. Parker, Jr., M.D. (Tennessee, 1941).

Associate Professor: C. William Erwin, M.D. (Texas, 1960).

Assistant Professor: Redford B. Williams, Jr., M.D. (Yale, 1967).

Research Associate: John W. Hartwell, Ph.D. (Duke, 1971).

DIVISION OF PSYCHIATRIC SOCIAL WORK

Assistant Professor: Martha L. Wertz, M.S.W. (Tulane, 1952), *Head of Division*.

Associate Professor: Maurine B. LaBarre, M.S.W. (Bryn Mawr, 1934).

Assistant Professors: S. Kathryn Barclay, M.S.W. (Tulane, 1946); Dorothy K. Heyman, M.S.W. (Pennsylvania, 1940); Grace H. Polansky, M.S.W. (Western Reserve, 1949).

Associates: Judith S. Altholz, M.S.W. (Chicago, 1969); Hallie M. Coppedge, M.S.W. (North Carolina, 1948); Chancellor B. Driscoll, M.S.S.W. (Louisville, 1951); Maxine R. Flowers, M.S.W. (Columbia, 1964); Jean F. Gregory, M.S.W. (Connecticut, 1967); Frederica C. Harrison, M.S.W. (Atlanta Univ., 1962); William D. Sudduth, M.S.W. (Minnesota, 1960); Lily P. Wang, M.S.W. (North Carolina, 1959).

Instructors: Winnie R. Breeden, M.S.W. (Wisconsin, 1971); Betty P. Busko, M.S.S. (Bryn Mawr, 1971); Patricia D. Hall, M.S.W. (North Carolina, 1967); Jane C. Moorman, M.S.W. (Tulane, 1971); Mayda A. Podell, M.S.W. (New York Univ., 1972).

Research Associate: Carol Van Steenberg, M.S.W. (Bryn Mawr, 1973).

DIVISION OF VETERANS ADMINISTRATION

Professor: Robert L. Green, Jr., M.D. (Hahnemann, 1946), *Head of Division*.

Professor: William W. K. Zung, M.D. (Texas, 1961).

Associate Professor: W. Edwin Fann, M.D. (Med. Coll. of Alabama, 1959).

Assistant Professors: Jesse O. Cavenar, M.D. (Arkansas, 1963); James L. Nash, M.D. (Duke, 1966); C. Bryan Norton, M.D. (Duke, 1966); John L. Sullivan, M.D. (Johns Hopkins, 1969).

Associates: Elliott B. Hammett, M.D. (Duke, 1966); David W. Robinson, Jr., M.D. (Michigan, 1962); Michael R. Volow, M.D. (Seton Hall, 1964).

Required Courses

PSC-200—required for all medical students during the first year—consists of 60 hours devoted to human behavior. A lecture series introduces the student to the concepts, techniques, and data of the various sciences most relevant to an understanding and multifaceted approach to human behavior. Lecturers from the fields of behavioral neurobiology, psychology, psychiatry, and sociology discuss behavior from the point of view of heredity and constitution, central and autonomic nervous systems, inner emotional conflicts and

interpersonal relationships, learning, cognition and perception, and relationships between the individual and his family, social institutions, and his culture and subculture. Functional and developmental points of view are presented and stages in the development of the individual personality are traced. Wherever possible relationships between the various approaches to human behavior are emphasized. Concurrently, a series of small group meetings provide opportunities for additional assimilation of lecture material and its application to specific examples of behavior through interviews of patients and group discussions. The small groups also provide opportunities to introduce effective techniques of human interaction and observation of the primary data on human behavior as well as methods of recording and interpreting these observations. In both the didactic and small group laboratory portions of the course, the relevance of human behavior to the biological and psychosocial aspects of medicine are stressed.

PSC-201—required during the second year—is an eight-week clerkship in clinical psychiatry. The student assumes limited responsibility, under supervision, for diagnosis and treatment of patients on the psychiatric wards, psychiatric outpatient clinic, and psychosomatic consultation services on non-psychiatric wards of the hospitals. Supervision is directed toward the significant application of concepts of diagnosis, psychopathological formulation, and therapy through descriptive-organic directive and the psychoanalytic-psychosocial-psychotherapeutic contributions to current psychiatric thought. Supervision is also provided to develop interpersonal techniques of sensitive observation and therapeutic use of self. Emphasis is placed upon concepts and techniques applicable to all patients as well as psychiatric patients. To this end student interviews with patients on the nonpsychiatric services are reviewed with a psychiatric supervisor. Didactic instruction includes seminars on symptomatic, characterological, and psychophysiological neurotic conditions, the major psychoses, psychiatric problems of childhood, adolescence and late life, drug and somatic therapies, the psychotherapies, and introductory electroencephalography. In addition to rounds and case conferences, students are encouraged to observe psychotherapy and participate in supervised psychological treatment whenever appropriate situations can be provided.

Electives

PSC-202(B). Philosophy of Science and Behavioral Sciences. Survey of current theories of knowledge, particularly as they relate to the special complex problems of empirical meaning, objectivity, measurement, and verification in studies of human behavior. Consideration is also given to the mind-body problem. Term: 2. Weight: 1. *Hine*

PSC-213(B). Human Development I: Birth-Adolescence. A survey of psychological development from birth to adolescence in terms of sequential emergence of major behavioral systems. Terms: 1 or 3. Weight: 2. *Borstelmann and Clifford*

PSC-214(B). Human Development II: The Later Years of Life. A review of selected biological, psychological, and social aspects of development at the end of life cycle. Terms: 2. Weight: 2. *Maddox and Busse*

PSC-215(B). Comparative Personality Theory. An examination of models of human functioning from Freud to the present. Topics will include examples from psychoanalytic, interpersonal, field theoretical, and behavioristic approaches. Term: 3. Weight: 1. *Crovitz and Krugman*

PSC-216(B). Intelligence and Cognition. Description of role of intelligence and cognition in behavior. Theories of intellectual functioning. Introduction to measurement of abilities. Effects of genetics, experience, age, and illness upon intelligence. Term: 4. Weight: 2. *Psychiatry Staff*

PSC-223(B). Biological Correlates of Behavior. A survey of current concepts of genetics, anatomical, physiological, neurochemical, and pharmacological factors affecting perception, cognition, feeling states, states of awareness, and memory is presented. The course includes an analysis of autonomic nervous system conditioning and an introduction to psychophysiological methods. The course also involves laboratory demonstrations, experiments, and discussions of principles presented in lectures. (Also listed as PHS-223B.) Terms: 1 and 2. Weight: 4. *Friedel and Staff*

***PSC-238(B). The Electroencephalogram and Psychological Function.** A survey of the literature on brain wave correlates of intelligence, personality, behavior disorders, epilepsy, sleep, sensory stimulation, conditioning, and learning. Lectures and laboratory demonstrations are included. (Also listed as Psychology 238 in the *Graduate School Bulletin*.) Terms: 3 and 4. Weight: 3. *Obrist*

PSC-293(B). Theory of Treatment Approaches of Behavioral Psychology. This course will cover learning theory behind behavioral treatment of maladaptive behaviors, as well as those behaviors associated with chronic medical problems. Obesity, as an example of a chronic medical care problem, will be used as a model for elaboration of theory; depression and sexual dysfunction, two maladaptive behaviors associated with obesity, will also be examined. The course is intended for those interested in psychiatry and/or chronic disease as seen in family practice. Term: 3. Weight: 2. *Musante*

PSC-299(B). Preceptorship in Behavioral Science. Opportunity for the student to work closely with a member of the faculty in an area of mutual interest with emphasis upon research. Every term. Weight: 1-8. *Friedel, Brehm, Thompson, and Staff*

PSC-303(B). Developmental Disabilities. Basic survey of the psychology of child development focusing upon the multiple problems posed by mental retardation and other developmental disabilities during early childhood. Implications for medical practice and education. Terms: 1, 2, or 3. Weight: 2. *Edwards*

PSC-305(B). Social and Cultural Aspects of Illness. Seminar on medical-social roles in community and hospital. Topics include physician-patient relationship; epidemiology of illness and health services in terms of ecology, social stratification, race, and life cycle. Students wishing further work in one particular topic, such as Negro sub-culture or gerontology, should take PSY-299(B) specifying particular interest. May be taken in conjunction with PSC-230(C), PSC-251(C). Term: 3. Weight: 3. *Palmore and Jackson*

PSC-227(C). Behavioral Aspects of Pediatric Illness. The purpose of this course is to introduce the student to the emotional aspects of sick children. Experience will include the impact on the family as well as the psychic and somatic adjustments of the child. (See also PED-227C.) Terms: 1, 2, 3, or 4 and summer. Weight: 3-6. *Jones, Edwards, and Ms. Driscoll*

PSC-234(C). Clinical and Experimental Psychopharmacology. Experience in one or more areas of psychopharmacology including clinical use of drugs, human experimental psychopharmacology, and animal neuropharmacology.

Lectures covering mechanisms of action and clinical use of psychoactive drugs. Terms: 2 or 3. Weight: 3. *Ellinwood, Wilson, Fann, Zung, and Friedel*

PSC-240(C). Inpatient Psychiatry: Environmental and Somatic Therapy. Intensive clinical course—diagnosis, treatment, and management methods. Patient care responsibilities including management of ward milieu and experience with somatic, individual, and group psychotherapy. Diagnosis, psychodynamics, and treatment emphasized. Selected patient conferences and didactic lectures. Student is given more clinical responsibility than in sophomore year. If desired, may arrange for special reading tutorial in related topics (e.g., schizophrenia). Every term. Weight: 8-6-3. *Green and F. Hine*

PSC-243(C). Principles and Practice of Outpatient Psychiatry. Training and experience in recognizing and treating emotional disorders in outpatients. Supervised experience with patient having emotional problems commonly seen in medical practice. Training to include theory and techniques of brief psychotherapy, crisis intervention, supportive psychotherapy, and utilization of community resources, both at Duke Hospital and neighboring agencies. Every term. Weight: 3-8. *Llewellyn, Hawkins, Rockwell, and Giragos*

PSC-245(C). Psychosomatic Medicine and Liaison Psychiatry. This is a full-time rotation within the Division of Psychosomatic Medicine. A variety of opportunities is available for consultation within the hospital to patients from services other than psychiatry and an opportunity for research, both basic and applied in the area of psychosomatic medicine and psychophysiological research. Patient care conferences, clinical rounds and didactic seminars are held with specialized groups in the hospital. The student participates in diagnostic work-up of psychosomatic patients and goal-limited treatment of such conditions. Term: 1, 2, 3, or 4. Weight: 8. *Breslin, Parker, Williams, Fann, Gentry, Volow, and Robinson*

PSC-251(C). Community Psychiatry and Mental Health. The student will be assigned to a faculty member active in Community Mental Health consistent with the student's special interests such as agency consultation, sociological studies, community health center operations, student mental health, suicide and crisis intervention, etc., and his faculty instructor will work out a laboratory project and special areas of study. Terms: 1, 2, 3, or 4. Weight: 4-8. *Llewellyn, Maddox, Rockwell, Giragos, and Lowenbach*

PSC-252(C). Christianity, Medicine, and Psychiatry. A clinical training program in which the relationships of Christian insights to the practice of medicine and especially psychological medicine are presented. The course includes attendance at regularly scheduled seminars, individual supervision in the diagnosis, management, and therapy of patients, supervised reading, and a special seminar related to religious psychopathology as well as the mental health benefits of Christian beliefs. Terms: 1, 2, 3, or 4. Weight: 4 or 8. *Wilson*

PSC-253(C). Group Psychotherapy. Observation of an on-going outpatient group psychotherapy program. Every term. Weight: 1. *Norton and Staff*

PSC-255(C). Marriage Counseling in Medical Practice. The principles and practices of marriage counseling will be taught. Required reading assignments will be made. The non-medical resources of marriage counseling will also be presented. Sexual problems commonly occurring in marriage will be discussed. Term: 2. Weight: 1. *Llewellyn, Breslin, and Pfeiffer*

PSC-259(C). Clinical Neurophysiology (EEG). Didactic and tutorial training in clinical neurophysiology as it relates to diseases of the central nervous system. The technical and interpretative aspects of electroencephalography are taught. Every term. Weight: 3. *Wilson*

PSC-261(C). Practice of Psychological Assessment Techniques. Demonstration and practice in the administration and in interpretation of psychological assessment techniques with emphasis on the potential utility of these techniques to physicians. Terms: 1, 2, 3, or 4. Weight: 1. *Huse and Staff*

PSC-267(C). Clinical Child Psychiatry. Survey of child and adolescent psychopathology including diagnostic treatment and consultative approaches. Conferences and seminars augment closely supervised clinical experiences. Terms: 1, 2, 3, or 4; or 1 and 2 or 3 and 4. Weight: 3-6. *W. Anderson*

PSC-333(C). Psychiatry Theory and Practice and Therapeutic Community in a Private Psychiatric Hospital. Principles and practice of psychiatric diagnosis and treatment. Instruction in psychiatric interviewing techniques. Psychological testing theory and administration. Theory of and supervised experience in individual psychotherapy, group psychotherapy, occupational therapy, recreational therapy, and total management of the patient. Active involvement in hospital's therapeutic community. Board and lodging for single and married students furnished. Every term. Weight: 9. *Neville, Bonner, Gillespie, Green, and Johnson*

PSC-335(C). Research Preceptorship in Clinical Psychiatry. This course allows the student to work on a research project in clinical psychiatry with selected members of the psychiatric staff. Terms: 1, 2, 3, or 4. Weight: 3-8. *Clinical Staff by Arrangement*

PSC-337(C). Geriatric Psychiatry. The medical and clinical aspects of geriatric psychiatry with emphasis on diagnosis and management of geriatric patients in a variety of treatment facilities. Course includes attendance at scheduled conferences and supervised review of geriatric literature. Course may be taken in conjunction with PSC-214(B), Personality Development II—Adolescence and Old Age. Terms: 1, 2, 3, or 4. Weight: 3-8. *Peok, Verwoerd, Wong, Palmore, and Staff*

PSC-339(C). Preceptorships in Clinical Psychiatry. An advanced program in the preceptorship style for the recognition, diagnosis, prognosis and treatment of psychiatric disorders. Experience will be mainly with inpatients and patients seen in consultation from other services but may include outpatients as well. Terms: 1, 2, 3, or 4. Weight: 3-8. *Clinical Staff by Arrangement*

PSC-343(C). Theoretical and Practical Aspects of Alcohol and Drug Abuse. The personality and sociocultural aspects of the drug and alcohol abuses are considered in depth. A student is taught the neuropharmacology of drug and alcohol abuse and is instructed in laboratory and research techniques with this population. He is offered a chance to engage in treatment of the abuses. Terms: 3 or 4. Weight: 4-8. *Ellinwood, Corter, Moddox, Rockwell, and Maltbie*

PSC-351(C). Clinical Use of Computers in Psychiatry. This course will assess the current state of the art of computerized mental health information systems; detail the planning and execution of these systems and assess new developments in theory and research arising from the application of computer technology to mental health concerns. Term: 2 or 3. Weight: 1. *Gionturco and Romm*

PSC-353(C). Prison Psychiatry—Adult and Adolescent. Part-time or full-time experience in a prison setting is offered. Diagnosis and treatment of adult and adolescent offenders with a variety of mental and physical and behavioral disturbances are emphasized. Elements of forensic psychiatry are stressed where appropriate. Supervision is provided by Duke and UNC consultants and the Central Prison Hospital and Mental Health Staff. Opportunities for participation in a wide range of original and on-going research are available. Every term. Weight: 2-9. *Gallemore, Smith, Owen, and Kaye*

PSC-355(C). Clinical Experience in Psychotherapy. A student who undertakes the psychotherapy of a psychiatric patient may obtain credit for this experience provided he can obtain the services of a psychiatric faculty member to serve as supervisor for this experience. The arrangement should be confirmed with the fourth year clinical D.P.A. Every term. Weight: 1-3. *Psychiatric Staff*

PSC-357(C). Behavior Therapy Seminar. This experience will consist of a review of pertinent literature in the areas of behavior therapy and behavior modification, a periodic review of the cases currently under treatment by members of the Psychiatry Department, and supervised involvement in a behavioral "token economy" program for chronic patients in a state facility. Term: 4. Weight: 1-2. *Gentry*

PSC-361(C). Clinical Seminar. Approach to diagnosis and treatment of psychiatric disorders. Term: 2. Weight: 1. *Lowenbach*

PSC-365(C). Individual Psychotherapy Based on Psychoanalytic Theory. Seminar concerning the theory and practice of individual psychotherapy involving reading, lecture, and discussion. If possible, on-going discussion of student's cases will be utilized. Students will be encouraged to become involved in therapeutic work with an individual case. Term: 1. Weight: 2-3; one credit per term. *Pauk*

Radiology

Professor: Richard G. Lester, M.D. (Columbia, 1948), Chairmon.

DIVISION OF DIAGNOSTIC RADIOLOGY

Assistant Professor: Arvin E. Robinson, M.D. (Med. Coll. of Virginia, 1964), Director.

Professors: Richard G. Lester, M.D. (Columbia, 1948); George J. Baylin, M.D. (Duke, 1937); William F. Barry, Jr., M.D. (Pennsylvania, 1946); John A. Goree, M.D. (Duke, 1955); Herman Grossman, M.D. (Columbia, 1953).

Associate Professors: James T. T. Chen, M.D. (Natl. Defense Med. Center, 1950); John P. Jimenez, M.D. (Med. Coll. of Virginia, 1955); Irwin S. Johnsrude, M.D. (Univ. of Manitoba, 1956); John A. Gehweiler, M.D. (Duke, 1956); Reed P. Rice, M.D. (Indiana, 1955); Robert McLelland, M.D. (Cincinnati, 1948); Donald C. Jackson, M.D. (Sheffield, 1954).

Assistant Professors: Frederick J. Meine, M.D. (Temple, 1966); George M. McCord, M.D. (Emory, 1965); Thomas T. Thompson, M.D. (Med. Coll. of Virginia, 1964).

Associates: Arthur F. Kriner, M.D. (Hahnemann, 1969); Raymond L. Osborne, M.D. (McGill, 1966); Joseph F. Phillips, M.D. (Emory, 1969); Saleh A. Fetouh, M.D., Ph.D. (North Carolina, 1972).

DIVISION OF RADIATION THERAPY

Professor: Patrick J. Cavanaugh, M.D. (St. Louis, 1951), Director.

Associate Professors: Boyd T. Worde, M.D. (Tennessee, 1947); Raymond U, Ph.D. (Kyoto, Japan, 1970).

Assistant Professor: Norman Abramson, M.D. (Temple, 1962); Donald A. Wolff, M.D. (North Carolina, 1954).

DIVISION OF NUCLEAR MEDICINE

Professor: Jack K. Goodrich, M.D. (Tennessee, 1953), Director.

Associate Professors: Jack D. Davidson, M.D. (Columbia, 1943); Craig C. Harris, M.S.E.E. (Tennessee, 1951); Robert H. Wilkinson, Jr., M.D. (Washington Univ., 1958); Joseph B. Workman, M.D. (Maryland, 1946).

Assistant Professor: William H. Briner, B.S. (Temple, 1954).

Associates: Frederick P. Bruno, M.D. (Florida, 1956); Elizabeth Blackburn, B.S., R.T. (Madison, 1954).

DIVISION OF RADIATION PHYSICS

Professor: Fearghus O'Foghludha, Ph.D. (Nat. Univ. of Ireland, 1961), Director.

Assistant Professor: Alice McCrea, M.D. (Chicago, 1956).

DIVISION OF RADIOBIOLOGY

Professor: Aaron P. Sanders, Ph.D. (North Carolina, 1964), Director.

Associate Professor: William D. Currie, Ph.D. (North Carolina, 1964).

Assistant Professor: Peter J. Kusel, Ph.D. (St. Louis, 1970).

RADIATION SAFETY

Associate: Conrad Knight, B.S. (Norwich, 1953).

Required Course

RAD-200—the basic course in radiology for all medical students—is combined with physical diagnosis and laboratory diagnosis into IND-200. The course is a concentrated lecture series with correlating demonstration laboratories designed to provide a broad introductory exposure to the entire field of radiology including diagnostic radiology, therapeutic radiology, and nuclear medicine.

Electives

RAD-227(B). General Radiobiology. Basic fundamentals essential to an understanding of biological effects of ionizing radiation. Major sections include radiation physics, radiation dosimetry, target theory and activated water theory in radiation damage, oxygen effect, radio-biochemistry, subcellular effects, tissue radiosensitivity, general radiation syndrome. Term: 3. Weight: 2. Sanders, Currie, U, and Kusel

RAD-207(C). Pediatric Radiology. A specialized program of instruction and participation in the wide variety of radiographic examinations in the pediatric age group. Special correlation of these examinations to the problems of specific diagnosis and patient care will be made. Student is to meet with D.P.A. prior to registering for any of the clinical electives in radiology. Every term. Weight: 4-8. Grossman, Meine, and Robinson

RAD-209(C). Clerkship in Neuroradiology. A specialized program of detailed instruction in neuroradiology. The program includes participation in the performance and interpretation of a variety of examinations including carotid arteriography, retrograde brachial arteriography, pneumoencephalography, myelography and others. Student is to meet with D.P.A. prior to registering for any of the clinical electives in radiology. Every term. Weight: 4. Goree, Jimenez, McCord, and Staff

RAD-215(C). Clinical Radiation Therapy. Approximately two-thirds of new cancer patients seen at the medical center are concentrated within the Division of Radiation Therapy. The course mainly provides an opportunity to observe a wide spectrum of clinical behavior in new patients, follow-up clinic, and in cases undergoing treatment. The course is aimed particularly at

students leaning toward gynecology, otolaryngology, as well as general surgery. Student is to meet with D.P.A. prior to registering for any of the clinical electives in radiology. Every term. Weight: 4-8. Cavanaugh, Worde, Abramson, and McCrea

RAD-229(C). Basic Radiology Clerkship. The radiology clerkship is designed to provide maximum flexibility for the student desiring exposure to the general field of radiology or to certain other subdivisions. The student may elect to study in several of the sections for a broad exposure or may choose to concentrate in a single area of particular interest. The sections participating in the clerkship include: general diagnostic radiology, pediatric radiology, GI radiology, GU radiology, nuclear medicine, diagnostic ultrasound, ENT radiology, orthopaedic radiology, and clinical radiation therapy. The program includes observation and participation in the performance and interpretation of the various routine and special procedures with correlation of these examinations to the problems of specific diagnosis and patient care. There is flexibility as to full or part-time course participation. All applicants for this course are to meet with the D.P.A. prior to registering and work out the program that best meets the student's interests and schedule. The student is expected to attend departmental conferences and student seminars. Every term. Weight: 4-8. Lester, Robinson, and Staff

Surgery

James B. Duke Professor: David C. Sabiston, Jr., M.D. (Johns Hopkins, 1947), Chairman.

DIVISION OF GENERAL AND THORACIC SURGERY

Professors: William W. Shingleton, M.D. (Bowman Gray, 1943), Chief of Division of General Surgery; Will C. Sealy, M.D. (Emory, 1936), Chief of Division of Thoracic Surgery.

Professors: D. Bernard Amos, M.D. (Guys Hospital, London, 1963), Experimental Surgery; William G. Anlyan, M.D. (Yale, 1949); Eugene D. Day, Ph.D. (Delaware, 1952), Experimental Surgery; Keith S. Grimson, M.D. (Rush, 1934); Norman Kirshner, Ph.D. (Pennsylvania, 1952), Experimental Surgery; William P. J. Peete, M.D. (Harvard, 1947); Raymond W. Postlethwait, M.D. (Duke, 1937); Donald Silver, M.D. (Duke, 1955); Delford L. Stickel, M.D. (Duke, 1953); W. Glenn Young, Jr., M.D. (Duke, 1948).

Associate Professors: Dani P. Bolognesi, Ph.D. (Duke, 1964), Experimental Surgery; Per-Otto F. Hagen, F.H.W.C. (Watt Univ., Edinburgh, Scotland, 1961), Experimental Surgery; R. Scott Jones, M.D., (Texas, 1961); H. Newland Oldham, Jr., M.D. (Baylor, 1961); Norman F. Ross, D.D.S. (Temple, 1937), Dentistry; Hilliard F. Seigler, M.D. (North Carolina, 1960); Wirt W. Smith, M.D. (Texas, 1951), Experimental Surgery; Samuel A. Wells, Jr., M.D. (Emory, 1961).

Associate Clinical Professors: James E. Davis, M.D. (Pennsylvania, 1943); William F. Hollister, M.D. (Duke, 1939); Timothy Takaro, M.D. (New York Univ., 1943).

Assistant Professors: Robert W. Anderson, M.D. (Northwestern, 1964); Darrell D. Bigner, M.D. (Duke, 1965), Experimental Surgery; F. M. Simmons Patterson, M.D. (Pennsylvania, 1939); Frances F. Ward, Ph.D. (Brown, 1965), Experimental Surgery; Walter G. Wolfe, M.D. (Temple, 1963).

Assistant Clinical Professors: Eugene F. Bartlett, M.D. (Washington, 1958); Rollins S. Burhans, Jr., M.D. (Louisville, 1963); Gordon M. Carver, M.D. (Duke, 1948); John M. Cheek, Jr., M.D. (Bowman Gray, 1945); John T. Daniels, M.D. (Howard, 1964); Alphonse J. Langlois, Ph.D. (Duke, 1966); Walter J. Loehr, M.D. (Cornell, 1963); F. Maxton Mauney, Jr., M.D. (Duke, 1959); W.B. McCutcheon, Jr., M.D. (Virginia, 1952); H. Max Schiebel, M.D. (Johns Hopkins, 1933); Stewart M. Scott, M.D. (Baylor, 1951); Gulshan K. Sethi, M.D. (All India, 1963); E. Wilson Staub, M.D. (Northwestern, 1957); Douglas H. Stone, M.D. (Harvard, 1937); Charles D. Watts, M.D. (Howard, 1943); James S. Wilson, M.D. (Duke, 1937).

Associates: Robert W. Green, Ph.D. (Hawaii, 1969); Don D. Mickey, Ph.D. (Louisiana State, 1969).

Clinical Associates: Leslie R. Abel, D.D.S. (Tennessee, 1961), Dentistry; Gordon D. Gregory, D.D.S. (Tennessee, 1968), Dentistry; Theron C. Johnson, D.D.S. (Kansas, 1960), Dentistry.

Clinical Instructors: Albert H. Bridgman, M.D.; Hugo L. Deaton, M.D.

Research Associates: Ruth Georgiade, M.A.; Ryotaro Ishizaki, Ph.D.; Anthony V. Seaber; Marguerite Alberta Thiele, A.B.

DIVISION OF NEUROSURGERY

Professor: Guy L. Odom, M.D. (Tulane, 1933), Chief.
James B. Duke Professor: Barnes Woodhall, M.D. (Johns Hopkins, 1930).
Associate Professor: Blaine S. Nashold, M.D. (Louisville, 1949).
Assistant Professors: Wesley A. Cook, Jr., M.D. (Oregon, 1963); M. Stephen Mahaley, M.D., Ph.D. (Duke, 1959).
Associate: Richard S. Kramer, M.D. (Duke, 1962).
Research Associates: Duane A. Dreyer, Ph.D. (Pittsburgh, 1971); Olin M. Pitts, Jr., Ph.D. (Med. Coll. of South Carolina, 1973).

DIVISION OF ORAL SURGERY

Professor: Nicholas G. Georgiade, D.D.S., M.D. (Duke, 1949), Chief.
Clinical Instructors: Claude J. Hearn, D.D.S.; Glenn A. Lazenby, D.D.S.; Jere E. Roe, D.D.S.

DIVISION OF ORTHOPAEDIC SURGERY

Professor: J. Leonard Goldner, M.D. (Nebraska, 1943), Chief.
Professors: Frank H. Bassett, III, M.D. (Louisville, 1957); Frank W. Clippinger, M.D. (Washington Univ., 1952); Donald E. McCollum, M.D. (Bowman Gray, 1953).
Associate Professor: James R. Urbaniak, M.D. (Duke, 1962).
Associate Clinical Professors: Everett I. Bugg, Jr., M.D. (Johns Hopkins, 1937); John Glasson, M.D. (Cornell, 1943).
Assistant Professors: Robert W. Gaines, M.D. (Duke, 1967); John M. Harrelson, M.D. (Duke, 1964).
Assistant Clinical Professors: Ralph W. Coonrad, M.D. (Duke, 1947); Stephen N. Lang, M.D. (Illinois, 1965); C. Robert Lincoln, M.D. (Med. Coll. of Virginia, 1960); Angus M. McBryde, Jr., M.D. (Duke, 1963); Robert E. Musgrave, M.D. (Tennessee, 1946); Frank H. Stelling, III, M.D. (Georgia, 1938); Howard A. Wright, M.D. (New York Univ., 1943).
Clinical Associates: Delos W. Boyer, M.D. (George Washington, 1950); Albert T. Jennette, M.D. (North Carolina, 1959); Glendall L. King, M.D. (Washington Univ., 1955), Ph.D. (Illinois, 1949); Leslie C. Meyer, M.D. (Nebraska, 1943); George R. Miller, M.D. (Rochester, 1944); Ronald A. Pruitt, M.D. (Med. Coll. of Virginia, 1959).
Clinical Instructor: William J. Callison, M.D.
Clinical Lecturer: William McK. Roberts, M.D.

DIVISION OF OTOLARYNGOLOGY

Professor: William R. Hudson, M.D. (Bowman Gray, 1951), Chief.
Associate Professor: Patrick D. Kenan, M.D. (Duke, 1959).
Assistant Professors: John H. Casseday, Ph.D. (Indiana, 1970); T. Boyce Cole, M.D. (North Carolina, 1962); Joseph C. Farmer, Jr., M.D. (Duke, 1962).
Assistant Clinical Professors: George B. Ferguson, M.D., (Jefferson Med. Coll., 1932); Carl M. Patterson, M.D. (Maryland, 1944).
Associate: Robert G. Paul, Ph.D. (Oklahoma, 1969).
Clinical Associate: Thaddeus H. Pope, Jr., M.D. (North Carolina, 1957).
Instructors: Linda G. Sipe, M.A., Susan M. Stewart, M.A.
Clinical Instructors: Seth G. Hobart, Jr., M.D.; William B. Inabnet, M.D.

DIVISION OF PLASTIC AND MAXILLOFACIAL SURGERY

Professor: Kenneth L. Pickrell, M.D. (Johns Hopkins, 1935), Chief.
Professors: Nicholas G. Georgiade, D.D.S., M.D. (Duke, 1949); Galen W. Quinn, D.D.S. (Creighton, 1952), Orthodontics.
Associate Professor: Edward Clifford, Ph.D. (Minnesota, 1954).
Assistant Professors: Kenneth R. Diehl, D.M.D. (Emory, 1961), Orthodontics; Lawrence K. Thompson, III, M.D. (Duke, 1961).

DIVISION OF UROLOGIC SURGERY

Professor: James F. Glenn, M.D. (Duke, 1953), Chief.
Professors: E. Everett Anderson, M.D. (Duke, 1958); John E. Dees, M.D. (Virginia, 1933); James H. Semans, M.D. (Johns Hopkins, 1936).
Associate Professor: Robert A. Bonar, Ph.D. (California at Berkeley, 1953), Biophysics.
Associate Clinical Professors: Jack Hughes, M.D. (Pennsylvania, 1943); Louis C. Roberts, M.D. (Duke, 1934).

Assistant Professors: John H. Grimes, M.D. (Northwestern, 1965); David F. Paulson, M.D. (Duke, 1964).

Assistant Clinical Professors: A. James Coppridge, M.D. (Virginia, 1953); Stephen V. Kishev, M.D. (Univ. of Sofia, Bulgaria, 1946).

Clinical Associates: Alexander Maitland, III, M.D. (Yale, 1955); Randall B. Vanderbeek, M.D. (Duke, 1963).

Clinical Instructor: Joyce D. Coughlin, M.D. (Buffalo, 1944).

Research Associates: Natalie B. Moore, Ph.D. (North Carolina, 1973); Yousuf Sharief, Ph.D. (North Carolina State, 1973).

PROGRAM IN HEARING AND SPEECH DISORDERS

Professor: LuVern H. Kunze, Ph.D. (Iowa, 1962), Director.

Associate Professor: Raymond Massengill, Jr., Ed.D. (Virginia, 1968).

Associate: Burton B. King, M.A. (Northwestern, 1955).

Clinical Associate: Allen S. Hall, Ph.D. (Ohio, 1970).

Required Course

SUR-200—the required course—is given in the second year and consists of a seven-week clinical clerkship for each student, with the primary aim the presentation of those concepts and principles which characterize the discipline of surgery. Basic and objective studies which are the foundation of surgical diagnosis and treatment and clinical documentation are emphasized. These topics are presented in informal seminars three times weekly and include antisepsis and surgical bacteriology, wounds and wound healing, inflammation, fluid and electrolyte balance, shock, the metabolic response to trauma, biology of neoplastic disease, gastrointestinal physiology and its derangements, blood coagulation, thrombosis, and embolism.

The students are divided into small groups and each is assigned a senior surgical instructor. Rounds at the bedside are made three times weekly with the faculty. Each morning students attend clinical rounds with the resident staff for discussion of surgical diagnosis and therapeutics. A one-hour session daily is devoted to a surgical specialty demonstration including conferences in neurosurgery, orthopaedics, otolaryngology, plastic surgery, and urology. Students are assigned patients on the surgical wards for diagnosis and management.

Electives

SUR-201(C). Advanced Surgery—Emphasis Cancer. Advanced concepts in surgery will be presented in seminars, and in ward, clinic, and operating room experiences. Fifty to 75 percent of the time will be devoted to clinical cancer and related basic topics, and the remainder to surgery generally. (Note: Seminars will be the same as in SUR-291; the student, therefore, may elect to take SUR-201 or 291 but not both.) Term: 1. Weight: 8. *Shingleton, Wells, and Staff*

SUR-202(C). Advanced Surgery—Emphasis Cardiovascular-Thoracic. Advanced concepts in surgery will be presented in seminars, and in ward, clinic, and operating room experiences. Fifty to 75 percent of the time will be devoted to cardiovascular-thoracic surgery and related basic topics, and the remainder to surgery generally. Term: 2. Weight: 8. *Sabiston, Anderson, Oldham, Sealy, Silver, Wolfe, and Young*

SUR-203(C). Advanced Surgery—Emphasis Transplantation. Advanced concepts in surgery will be presented in seminars, and in ward, clinic, and operating room experiences. Fifty to 75 percent of the time will be devoted

to clinical transplantation and related basic topics, and the remainder to surgery generally. Term: 3. Weight: 8. *Stickel, Seigler, Amos, and Staff*

SUR-204(C). Advanced Surgery—Emphasis Gastrointestinal and Trauma (Patient Care). Advanced concepts in surgery will be presented in seminars, and in ward, clinic, and operating room experiences. Fifty to 75 percent of the time will be devoted to surgery of the alimentary tract and trauma and related basic topics, and the remainder to surgery generally. Term: 4. Weight: 8. *Peete, Grimson, Shingleton, Seigler, Thompson, Clippinger, and Jones*

SUR-219(C). Advanced General and Thoracic Surgery (V. A. Hospital). Special attention will be given to those subjects in surgery common to all medical practices. Patients will be assigned to the students. The major emphasis will be on physiologic and pathologic changes, diagnosis, and the indications for operation. Every term. Weight: 8. *Postlethwait, Oldham, Silver, Seigler, Stickel, Scott, and Jones*

SUR-221(C). Surgical Specialties and Ophthalmology (V. A. Hospital). The student will attend selected conferences of all the surgical specialties and ophthalmology. Additionally he will select two or three of these specialties in which to concentrate experience (on one service at a time) in the operating rooms, clinics, and wards of the V. A. Hospital. Pathophysiology, diagnosis, and treatment will be emphasized. Every term. Weight: 8. *Postlethwait, Chandler, Cole, Dees, Thompson, Urbaniak, and Cook*

SUR-222(C). Clinical Dentistry. Normal and abnormal development of head and oral structures. Importance of teeth for mastication, speech, and esthetics. Pediatric to geriatric dental disease, its prevention, examination, diagnosis, and treatment. Surgical correction and clinical management of oral surgical problems. Clinical duty. Every term. Weight: 1. *Quinn, Ross, Diehl, and Georgiade*

SUR-223(C). Medical and Surgical Renal Disease. Experience is offered in diagnosis and management of surgical diseases of the urinary tract and medical renal diseases with emphasis on clinical patient care. Participation in special urologic clinics and exposure to hemodialysis is offered with emphasis upon renal transplantation, renal failure, renovascular hypertension, and other aspects of medical and surgical disease. Every term. Weight: 8. *Glenn, Robinson, and Respective Staff*

SUR-227(C). Clinical Urologic Surgery. The diagnosis, management, and surgical treatment of patients with urologic disorders will be stressed. Students will be afforded intimate association with the entire staff in the clinics, wards, and operating rooms and will participate in surgery. Cystoscopic and urographic diagnostic methods along with other techniques will be taught. Every term. Weight: 8. *Glenn, Dees, Anderson, Grimes, and Staff*

SUR-230(C). Seminar in Urologic Diseases and Techniques. Lecture-seminar course by members of the staff in urology and radiology, providing an introduction to the spectrum of urologic diseases, amplified by demonstration of urologic and radiologic diagnostic methodology. Clinical problems to be stressed include endocrinopathies, pediatric urology, obstructive uropathies, renovascular hypertension, urinary calculi, and urologic malignancies. Informal seminars given weekly. Every term. Weight: 2. *Glenn, Dees, Anderson, Barry, Semans, Grimes, and Staff*

SUR-233(C). Basic Neurosurgery Course. Disease conditions commonly encountered in neurosurgery are presented. Clinical presentation of a common neurological disorder such as brain tumor or head injury is made by a member

of the staff. Clinical features and plan of diagnostic investigation are stressed. The clinical disorder is used as a focal point from which to carry the presentation into the basic science areas related to the clinical problem. Terms: 1, 2, 3, or 4. Weight: 1. *Mahaley, Cook, and Kramer*

SUR-235(C). Clinical Neurosurgery. Course is designed for those students with future interest in the neurological sciences. Duties include the workup and care of inpatients, workup of clinic patients, assisting in the operating room, routine postoperative care, daily rounds, and night call. Weekly conferences are held in neurology, neuropathology, and neuroradiology, neurophysiology, and anatomy, and special lectures. Every term. Weight: 8. *Odom, Nashold, Mahaley, Cook, and Kramer*

SUR-237(C). Investigative Neurosurgery. The student is assigned a project relating to the neurological sciences and is provided with technical help, recording equipment, and experimental animals necessary for its completion. Each student plans and executes his own individual project, with the help of the neurosurgery staff. Weekly conferences are also attended. Terms: 1, 2, 3, or 4. Weight: 8. *Odom, Nashold, Mahaley, Cook, and Kramer*

SUR-239(C). Clinical Otolaryngology. This course will provide the student with a comprehensive survey of clinical otolaryngology. Duties will include participation in both outpatient clinic activities and inpatient care in addition to assisting in the operating room. The student will participate in ward rounds and in the various conferences held by the division. Every term. Weight: 3 or 6. *Hudson, Kenan, Cole, and Farmer*

SUR-240(C). Otolaryngologic Seminar. This conference and demonstration course will provide an introduction to a variety of clinical problems in otolaryngology. Lectures will be supplemented with case presentations illustrating problems encountered in this field. Every term. Weight: 1. *Hudson, Kenan, Cole, and Farmer*

SUR-245(C). Reconstructive Plastic Surgery. Study of broad principles of trauma, wounding, healing, and varied reparative processes. Every term. Weight: 6. *Pickrell, Georgiade, Thompson, and Staff*

SUR-255(C). Medical Speech Pathology. Diagnostic and rehabilitation treatment used with the patients at Medical Center, including articulation disorders, delayed speech development, cleft palate, stuttering, voice disorders, aphasia, cerebral palsy, language disorders, mental retarded speech, lisping, oral inaccuracy, laryngectomy, and other disorders of speech not falling under one certain category. Every term. Weight: 1. *Massengill*

SUR-259(C). General Principles of Orthopaedics. A full or part-time experience on the Orthopaedic Service with duties and responsibilities similar to a junior intern. Inpatient care, outpatient examination, and operating room experience are included. Individual or group discussions each day with attending staff. The purpose of the course is to present broad concepts of orthopaedics to students planning general practice, pediatrics, allied surgical specialties, or orthopaedics. Every term. Weight: 4 or 8. *Goldner, Clippinger, McCollum, Bassett, Urbaniak, Gaines, Harrelson, and Staff*

SUR-261(C). Office and Ambulatory Orthopaedics. A full or part-time experience on the Orthopaedic Service with duties and responsibilities similar to a junior intern. Inpatient care, outpatient examination, and operating room experience are included. Individual or group discussions each day with attending staff. The purpose of the course is to offer clinical experience to students who have completed the seminar portion of Surgery 259(C). Rotations will be

similar to those of Surgery 259(C). Terms: 2 or 4. Weight: 8. *Bossett, Clippinger, Goldner, McCollum, Urbaniok, Bugg, Coonrad, Lincoln, and Glosson*

SUR-267(C). Clinical Conference in Cerebral Palsy and Children's Orthopaedics. Conference is arranged for those interested in neurological disease. Pediatric orthopaedic problems, and related fields. These conferences demonstrate both the individual and group approach to the patient with complex neurologic conditions as it effects both growth and development. Outpatients and inpatients are utilized for subject material. Staff personnel readily available for individual seminars. Terms: 1, 2, 3, or 4. Weight: 2 or 4. *Coonrod, Griffith, Renuort, Goldner, Bossett, and Lenox D. Boker Cerebral Palsy Hospital Staff*

SUR-275(C). Electromyography. This course is an introduction to the theory, techniques, and practice of clinical electromyography. Conference and demonstrations are the principle methods of instruction. The student participates in all phases of diagnostic study and learns the indications for use of electromyography as well as the interpretation of data. Every term. Weight: 2. *Clippinger, Urbaniok, and Orthopaedic Staff*

SUR-277(C). Orthopaedic Research. Individual projects are assigned for completion during a limited period of time. A student works with an investigator in the orthopaedic laboratory either at Duke Medical Center or the Durham Veterans Administration Hospital. Clinical investigative studies are also available at both institutions. Every term. Weight: 8. *Goldner, Urbaniak, Goines, Horrelson, Evans, Orthopaedic Senior Staff, and House Staff*

SUR-281(C). Introduction to Fractures and Musculoskeletal Trauma. Students will participate in the emergency management of patients through the Duke emergency room primarily, but also through Watts and the Durham V. A. Hospitals. Principles of fractures in trauma will be given throughout the week at specified times and attendance at fracture clinic will be required. Every term. Weight: 3. *Entire Senior Staff at Duke and Wotts, supervision by Dr. Goldner of Duke, Dr. Urbaniok of V. A., and Dr. Bugg of Wotts*

SUR-291(C). Cancer: CHS, MED, MIC, OBG, PED, PTH, RAD, and SUR Aspects. Taught by an interdepartmental faculty, course consists of seminars in clinical and related basic aspects of oncology (4 hours per week); case presentation conferences (2 hours per week); and ward and clinic experiences in diagnosis and treatment (remaining time). The student elects one clinical department for the ward and clinical experiences. Term: 3. Weight: 2-8. *Shingleton, Covonough, Heyden, Johnston, Creosmon, Loszlo, and Porter*

SUR-299(C). Advanced Surgical Clerkship. This course is structured to provide the student with a comprehensive approach to surgical disorders. Each student will choose to work, in the clinics, on the wards, in the operating rooms, and in the laboratory, with one senior surgeon for eight weeks. Advanced concepts in surgery will be taught and problem solving techniques will be demonstrated. Every term at discretion of instructor. (Student should make advanced arrangements with specific instructor). Weight: 8. *Sobiston, Jones, Oldhom, Postlethwait, Seoly, Seigler, Shingleton, Silver, Stickel, Young, Anderson, Wells, and Wolfe*

SUR-301(C). Emergency Surgical Care. Students desiring additional experience working with care of emergency surgical patients will be assigned to the emergency room three nights a week. They will participate in the diagnosis and care of acute and traumatic surgical emergencies. Every term. Weight: 3. *Stickel*

Special Interdisciplinary Training Programs

BSP-201(B). Behavioral Sciences Study Program. The focus of the study program will be to obtain an understanding of basic processes underlying human behavior. This will involve a year-long experience designed to familiarize the medical student with significant issues in the behavioral sciences and the methodology used to investigate such issues. Each student will be given the opportunity to focus on some determinant of human behavior, which may include biological, psychological, developmental, or social factors. The major portion of the student's time will be spent in closely supervised library or laboratory research in an area of the student's interest resulting in the preparation of a report of the work. A seminar series is also held, the students presenting topics chosen from proposed material as well as a summary of their own work. Students enrolled in this program may take courses given in the Medical and Graduate Schools and it is expected that they will integrate and balance their work with some courses of general medical importance. The faculty for the BSP is an interdisciplinary group representing several departments of the Medical School and University and is involved in a broad range of interests in individual and group behavior. Every term. Weight: 9 per term. Program Director—Friedel; Associate Directors—Brehm and Thompson

CVS-201(B). Cardiovascular-Respiratory Sciences Study Program. The Study Program in Cardiovascular-Respiratory Sciences (CVS) is designed to offer third year students instruction for one academic year in basic sciences as applied to the understanding of the cardiovascular and respiratory systems in health and disease. The program is interdepartmental in nature and will constitute a full credit load for those students who participate. It is comprised of three parts that run concurrently.

1. Individual Tutorial. The student will identify with a senior member of the medical school faculty who is participating in the program. The major part of the educational program for the student will be in the form of individual tutorials with this member of the staff. This tutorial may be full-time independent research or an intensive study experience for the student. The student and his tutor will develop a plan and will review it with the directors of the program.

2. Group Seminar. A seminar series will be developed, the purpose of which is to read and discuss selected papers and/or discuss problems and topics which arise in the course of the lectures or are complementary to them. Students will be active participants in the seminar, and through this mechanism it is hoped to integrate knowledge of cellular physiology and pharmacology into an understanding of organ system function and control.

3. Lecture Courses. The following courses are required: The Heart (207) and Peripheral Circulation (205) and the Respiratory System (208) in health and disease. These courses in cardiovascular and respiratory physiology and pharmacology will present selected topics in cardiovascular and respiratory physiology and pharmacology including analysis and evaluation of experimental and clinical studies relating to selected diseases of the circulation, cardiac electrophysiology and arrhythmias, ventricular-atrial function, congenital disordered function and coronary blood flow, pulmonary mechanics, central and peripheral regulation of ventilation, pulmonary circulation and respiratory responses to exercise, altitude, and hyperbaric environments. The above plan provides a structured and recommended curriculum design. Within this framework multiple pathways are available because of the concentration of effort in the tutorial experience. Tutorials can be arranged within any

of the basic science departments or with individuals in clinical departments whose orientation or research is consistent with the goals of the program. Once a tutor is identified, added flexibility is gained by having the option to elect courses in addition to the required course in physiology and pharmacology, or to elect seminars in addition to the group seminar. Terms: 1, 2, 3, and 4. Weight: 9 per term. Program Director—E. Johnson

DDS-201(B). Development and Differentiation Study Program. Recent advances in molecular and cell biology have provided new concepts in the area of developmental biology. This program is designed to give the medical student an appreciation of the developmental phenomena as the basis for advanced training in research in a variety of biomedical disciplines. The program has been organized on a multidisciplinary level to provide comprehensive coverage for many areas including molecular, biochemical, and genetic approaches to the analysis of differentiation and development. The course will begin with a basic analysis of the chromosome, and the relevant models of transcriptional and translational control, some of the newer concepts of the molecular basis of fertilization and early development, the biochemistry of organogenesis, viral transformation and tumor formation. Emphasis will be on recent concepts in fetal, neonatal, and oncogenic mechanisms as well as processes involved in aging and cell death. The rapidly expanding body of knowledge gained from these approaches will be examined by the students through seminars and direct observations in the laboratories of the participating faculty.

The program can be selected by the student for one or two semesters. The first semester will consist of (1) a series of lectures given three times a week to cover basic principles, (2) a series of seminars conducted by the students under the guidance of the faculty, and (3) rotation through the laboratories of the participating faculty. During this rotation the student will learn through direct observation, participation, and discussion with the staff of each laboratory. He also may undertake research in one of these laboratories if he so desires.

The students will meet on Monday, Wednesday, and Friday at 10:10-11:00 to attend the introductory course in development and differentiation. This course covers basic principles and is taught by the entire faculty for the purpose of establishing a firm foundation for the more advanced studies given in the second semester.

The students will also prepare and attend seminars in differentiation and development. These seminars will be conducted by the students under the guidance of the faculty.

The students will also have 10-12 weeks of laboratory rotation. Laboratory rotation will be through the laboratories of the participating faculty. This experience will occupy 3-5 hours per week and will consist of a series of laboratory experiments to learn through direct observation, participation, and discussion with a staff of each laboratory. The experiments are carefully selected to provide an opportunity for the student to become familiar with specific laboratory techniques such as ultracentrifugation, amino acid analysis, electrophoresis, etc. Most important, however, the student will have an opportunity not only to learn experimental details but also to familiarize himself with unique sources of materials. This laboratory experience during the rotation will aid in the decision of the area of research and laboratory in which the student will participate during the second semester.

Upon entrance into the program the student will be interviewed by the faculty and his past record examined for any obvious deficiencies. Thus, in addition to the introductory course required of all students, some students

may take 1-2 additional courses as for example, Macromolecules, or Enzyme Mechanisms. The student will not be encouraged to take a large series of courses but will be encouraged to pursue a tutorial experience. In some cases the students, for example, may start their research tutorial in November while others may defer this decision to a later date. In a few cases, the students may also elect to spend part of their time in a library project under close faculty supervision. If the student elects to do a library project he will prepare this work to be circulated among the faculty and will present an in-depth seminar. The mornings will be reserved for course work and the afternoons for laboratory rotation and tutorials.

In the second semester, the students may wish to apply the knowledge gained in the first semester directly to advanced training or research in a field of study of his interest such as teratogenesis, immunology, hematology, cardiology, endocrinology, etc. In this event, he would be permitted to elect appropriate courses as a study program or research in these areas. The formal developmental biology course will be finished in the first semester, but the seminar course will continue through the second semester meeting two hours per week on Tuesdays and Thursdays.

The course work for the second semester will consist of advanced courses, for example the Biochemistry of Development, Animal Cell Virology, and Endocrinology and Reproduction. The student will select a preceptor in whose laboratory and under whose guidance he will engage in a research project.

The student is offered considerable flexibility in this program, since he need not commit himself to it prior to this choice of preceptor. But by taking 18 hours of course work during the first semester, he is not penalized if he decides not to continue this program during the second semester. Terms: 1 and 2 required; 3 and 4 optional. Weight: 18 per semester. McCarty, Counce, Padilla, Harris, Sommer, Moses, Kaufman, Johnson, and Vanaman

EDR-201(B). Endocrinology and Reproductive Biology Study Program.

This interdepartmental program is designed to provide third-year medical students with an opportunity for in-depth study of cellular endocrinology, neuroendocrinology, and reproductive systems in health and disease. In this program, major emphasis is placed on development of a plan of independent study for each student which is based on a tutorial or preceptorial association with an individual member of the program faculty. In addition, all members of the program, including faculty, meet regularly for seminars, discussions, and guest lectures on selected topics of interest to the entire group. A student usually spends four terms in the program and receives full credit for the medical school advanced basic science requirement. Although the program traditionally begins in September, its structure is potentially flexible enough to accommodate those who wish to begin in any term, including the summer terms. It should be emphasized that while the primary aim of the program is to provide an intensive experience in endocrinology and reproductive biology, opportunity is provided within the program format for students to broaden their basic science background by taking courses which may be unrelated to the subject matter of the study program.

For all students, the program consists of the following components:

1. An individual tutorial, carried out in association with one or more senior faculty members selected by the student, and generally involves laboratory research in a particular area of endocrinology or reproductive biology. Before entering the program, students are asked to complete their tutorial arrangements. In order to facilitate this process, the program director will, on request, direct students to appropriate members of the

program faculty or other members of the Medical School faculty whose specialty and research interests would permit them to participate in the program.

2. The seminar, held bi-weekly on Tuesday afternoon throughout the academic year, covers various topics in endocrinology and reproduction in a format designed to explore current concepts, primarily through critical reading and discussion of contemporary literature. It utilizes the background and experience of all members of the program faculty, guest speakers, and active student participation to develop an integrated approach to basic problems in endocrinology and reproductive biology. Taken as a whole, the series provides broad coverage of endocrine phenomena from a cell biology viewpoint. The application of basic concepts to clinical problems and human disease is considered to provide continuity with future clinical training. In addition, all students and faculty meet one evening a month at the home of a faculty member with invited guests from Duke and other institutions for an extensive informal discussion of topics of special interest to current members of the program.

3. Lecture courses. There are no specific course requirements in this program. In order to provide additional breadth of preclinical experience related to immediate or long-term interests, students are encouraged to take up to four units of course work per term. As noted above, individual course selections are not limited to those related to endocrinology or reproductive biology, although consultation with one's preceptor is recommended before making final selection. PHS-417, Cellular Endocrinology and/or PHS-418 (ANA-418), Reproductive Biology may be recommended to those students who desire additional formal coverage of basic mechanisms. Every term. Weight: 9 per term. *Anderson, Bell, Blake, Crenshaw, Everett, Fellows, Handwerker, Lebovitz, Schomberg, and Tyrey*

IND-300(B) or (C). Interdisciplinary Seminar in Medical-Legal-Ethical Issues. The seminar will be composed of students in approximately equal number from the Medical, Divinity, and Law Schools, and will explore important medical, legal, and ethical features of current issues (e.g., transplantation, euthanasia, abortion). Faculty and resource persons from all three schools will participate in the seminar. Up to four introductory sessions in the fall semester for all participating students and faculty will be concluded with arrangement of interdisciplinary terms and selected topics. Student teams will meet during the winter and consult at intervals with faculty. All seminar participants will reassemble for a series of weekly meetings, ending in mid-March, to present and discuss the topics researched. Any topics, properly focused, may be considered. Terms: 2 and 3, credit awarded. Term 3. Weight: 2. *Gallemore, Shimm, Smith, and Other Faculty Members from the Medical, Law, and Divinity Schools*

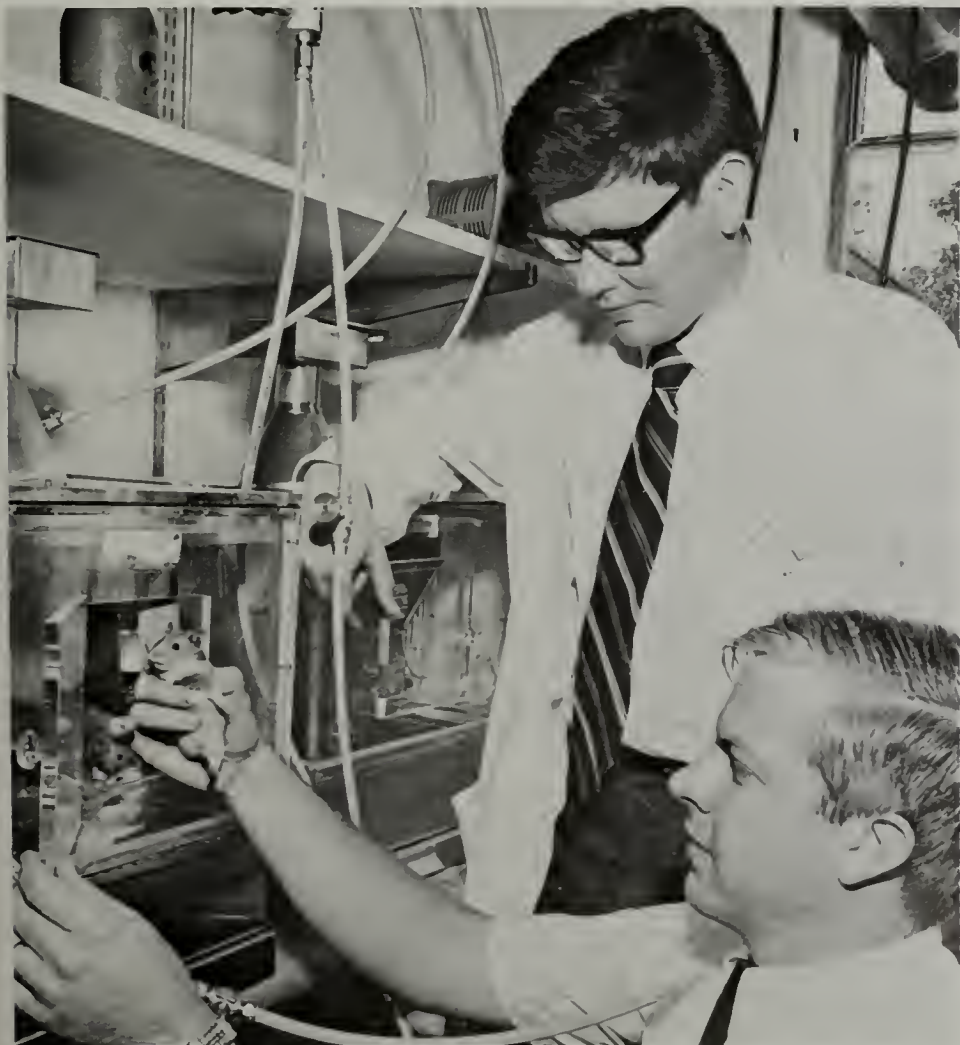
ISP-201(B). Immunology Study Program. This study program is designed for students whose career goals lie in one of the many clinical specialties which interface broadly with immunology: allergy-immunology, infectious diseases, rheumatology, immunohematology, transplantation, and oncology. A general fund of information is provided in a survey course, Medical Immunology (MIC-330), which emphasizes clinical examples of basic immune mechanisms. The student may also elect concurrent training in the biochemistry of macromolecules, molecular genetics, or cellular immunophysiology. Seminars by faculty and a regular schedule of guest lecturers are supplemented by basic and clinical topics selected for student seminars. Each student is assigned to a faculty preceptor; in collaboration with the preceptor, the student accomplishes a research project and survey of relevant literature.

This laboratory work is continued throughout the year and formulated for presentation prior to completion of the study program. The student is expected to gain a useful personal perspective of current immunologic thought as well as the experience and fund of information necessary for clinical application.

The student's efforts and time are distributed as follows:

1. Medical Immunology (MIC-330). Basic study of immune responses to antigenic substances. Special topics: congenital and acquired immunodeficiency diseases; humoral and cellular hypersensitivity; immunology of infectious diseases; immunogenetics; immunohematology; autoimmunity; transplantation immunology, tumor immunology. Student seminars and patient presentations when applicable. (Spring 1974, fall 1975.) 6 units. Amos, E. Buckley, Adams, R. Buckley, Cate, Levy, Rosse, Seigler, Smith, Snyderman, and Wells

2. Optional additional formal courses recommended: Macromolecules (BCH-293), 4 hours; or Molecular Genetics (BCH-216), 3 hours; or Cellular Immunophysiology (PHS-420), 2 hours.



3. Immunology seminar (MIC-332.1-332.8), 2 hours per week, 1 unit per semester.

4. Work in progress: staff and graduate student working seminars, 1-2 hours per week.

5. Preceptorship: 20 or more hours per week of precepted investigative work. Terms: 3 and 4. Weight: 9 units per term. Amos, Adams, E. Buckley, R. Buckley, Grothaus, Lauf, Levy, Metzgar, Rosse, Sage, Scott, Seigler, Smith, Snyderman, and Wagner

MRT-399(B). Medical Research Training Program. The Research Training Program is an interdepartmental program offered to third-year students and to qualified residents and fellows with the M.D. degree. The purpose of the program is to provide students with the theoretical background and practical experience necessary for a basic science approach to biomedical research. Operationally, the program can be divided into two parts:

1. From September to November, students receive an intensive and coordinated series of lectures and laboratory exercises in the areas of enzymology, protein chemistry, cellular and molecular ultrastructure, immunochemistry, molecular biology, virology, and active transport. Laboratory exercises are designed to give students practical experience in the use of various research techniques such as: electrophoresis; chromatography; various immunochemical procedures; preparative and analytical centrifugation; spectrophotometry; growth, assay, and genetics of bacteria, bacteriophage, mammalian viruses, and mammalian cells in tissue culture; use of radioisotopes. Lecture material covers the theory of these laboratory exercises and includes a great deal of general information pertaining to the current state of knowledge in many areas of biomedical science. The purposes of the first three months of the course are to carefully and personally instruct students in the experimental techniques used in modern biomedical investigation, and to provide them with the background of basic scientific theory necessary to successfully carry out an individual research project during the second part of the course. During this time students spend a full eight hours per day in lecture and laboratory in continued contact with their colleagues and one or more instructors. A strong group interaction between students, fellows, and staff contributes to an effective teaching and learning atmosphere.

2. From December to June, students work on individual research projects under the supervision of a faculty member. A student has a virtually unlimited choice of research projects and may elect to work in the laboratory of anyone in the Medical Center who is doing basic biomedical research. Staff and students meet once a week for approximately three months in the spring for a general seminar series, and in late May students present seminars on their research accomplishments to date.

A formal course in biostatistics meets throughout the year. Terms: 1, 2, 3, and 4. Weight: 9 units per term. Kredich and Staff

NSS-201(B). Neurosciences Study Program. The Neurosciences Study Program is an interdepartmental, interdisciplinary program designed to coordinate the study of neurobiology in the third year curriculum. The program permits the student an opportunity for independent study and growth in neurobiology under the guidance of several basic science faculty members engaged in research on the nervous system. In recent years significant developments in molecular biology, electron microscopy, neurophysiology, and neurochemistry have given us an approach to the understanding of brain function at a cellular and subcellular level. In addition increasing sophistication has been introduced in studies at an organismic level. These develop-

ments provide hope for a greater understanding of the biological basis of brain function; and tremendously increase our need for well-trained physicians to understand the fundamental basis of neurobiology for careers relevant to the specific area as well as to all of medicine.

The program will last for 32 weeks. Participation in the program will require active participation in a neurobiology study group tutorial and in a preceptorship with one of the basic science faculty members. The major emphasis of the program will be on individual laboratory research training under the preceptorship of one of the members of the training staff. In addition the trainee, in consultation with his preceptor, will be encouraged to enroll in one or two courses relevant to his special interests and career plans. A wide range of projects is available for interested students. For physiologic approaches to the nervous system, the laboratories of Dr. George Somjen, Dr. Antonio Escueta, Dr. John Moore, Dr. Frans Jöbbsis, and Dr. Wesley Cook are available. For pharmacology, the laboratory of Dr. Saul M. Schanberg and Dr. Toshio Narahashi; and morphological studies, the laboratories of Dr. J. David Robertson, Dr. M. Steven Mahaley, Dr. F. Stephen Vogel, and Dr. Talmage Peele are available. For virologic studies, the laboratories of Dr. John Griffith, Dr. Darrell Bigner, Dr. Nelson Levy, and Dr. M. Steven Mahaley are available. For biochemical studies, the laboratories of Dr. Stanley H. Appel, Dr. Ara Tourian, and Dr. Bernard Kaufman are available.

The neurobiology study group tutorial will permit students to gain understanding of several different aspects of neurologic science as well as topics in the biology of behavior. These meetings are held two times a month and consist of topics selected by the students from a list provided by the faculty members of the program. The range of topics include pertinent subjects of neuroscientific relevance such as aspects of macromolecular synthesis, neural development and function, neural subsystems and physiologic operation, communication and coding in the nervous system, recognition and control at a molecular level, and selected aspects of molecular neurobiology. In addition the students are required to attend Monday afternoon seminars from 4:00-6:00 p.m. which are part of the postdoctoral program in neurobiology. These sessions are given by postdoctoral students and cover subjects relevant to the biology of behavior and essential to an understanding of neurobiology.

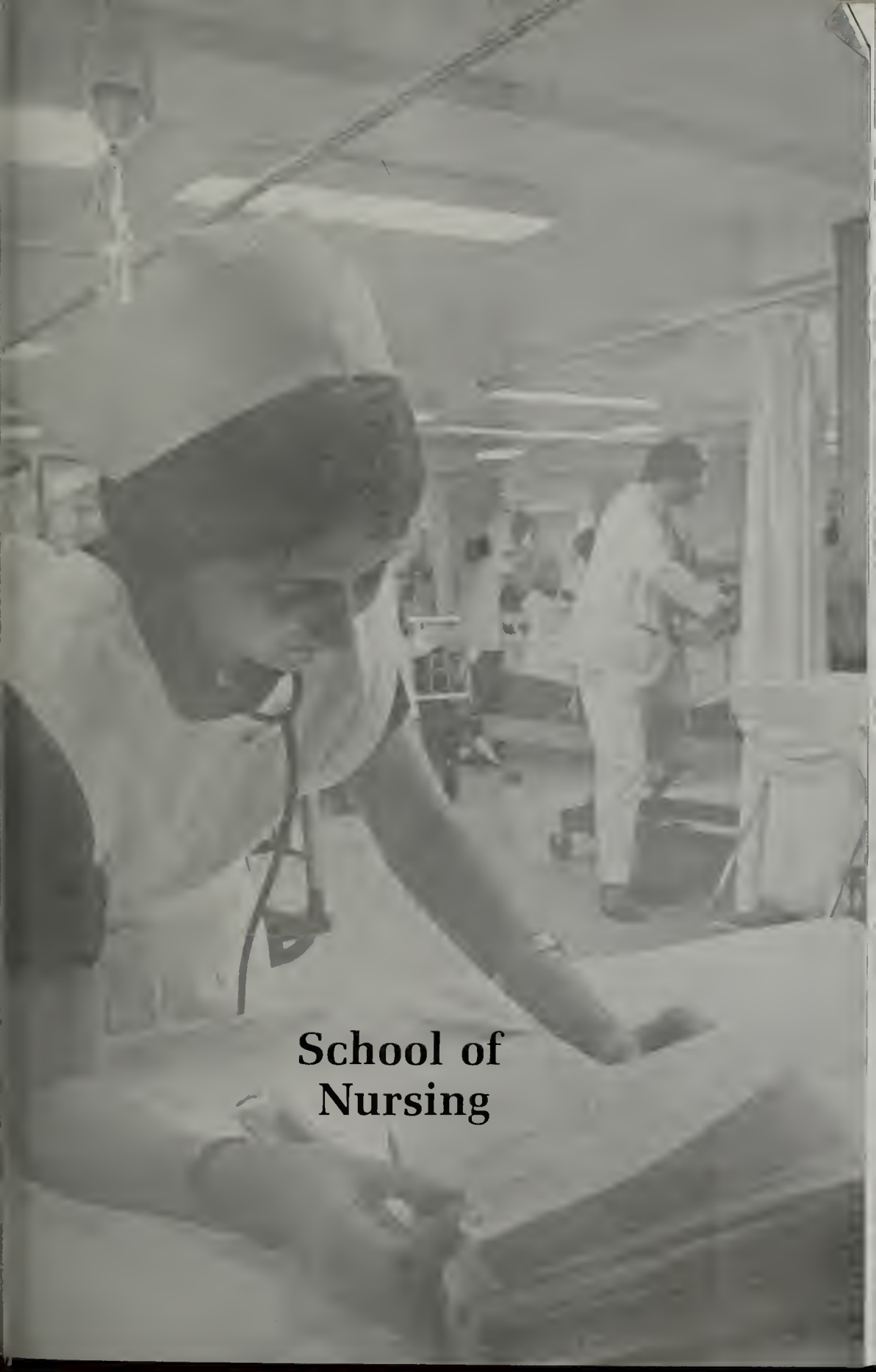
At the termination of their laboratory experience, all students are required to submit a paper describing their work and accomplishments during the year. Students are encouraged to attend one meeting on a national level thought by their preceptors to be essential to their educational experience in the neurosciences. Terms: 1, 2, 3, and 4. Weight: 9 units per term. Appel, Schanberg, Somjen, Escueta, Vogel, Peele, Mahaley, and Tourian

VSP-201(B). Virology Study Program. The objective is to indicate the relevance of investigative virology to problems of clinical medicine and to provide an introduction to recent advances in virus research. The program will consist of:

1. Lectures and seminars. Students will take two courses consisting of lectures and seminars: MIC-304(B)—Basic Medical Virology and PTH-376(B)—Pathology of Viral Diseases. Topics to be discussed in Basic Medical Virology (2 hours per week) are: structure and replication of major virus groups as a basis for the understanding of viral pathogenesis; cellular and host responses to viral infections; immune responses to and the immunopathology of viral infections; DNA and RNA tumor viruses and their possible role in malignancy. In the Pathology of Virus Diseases (4 hours per week) emphasis will be placed on clinical, pathological, immunological, and epidemiological relationships in viral diseases.

2. Other courses. Students in the program will have an option to take one additional relevant lecture course approved by the course directors. (See also the section on the Individual Tutorial.)

3. Individual tutorial. During the remainder of the time each student will be supervised by a faculty member participating in the program in a study project. It is generally believed that it would be most beneficial for a student to carry out a laboratory research project. Lectures and seminars have been planned so that students may spend at least five or six hours each day in the laboratory. In the cases where program directors would approve of a project of a different nature, the student again would be supervised by one of the participating faculty members. In a study project of this kind, a student may be expected to take more than one additional relevant course. (See the section on other courses.) Terms: 1 and 2. Weight: 9 units per term. *Bigner, Bolognesi, Bonar, Cate, Daniels, Griffith, Hall, Harriman, Joklik, Katz, Lang, Levy, Metzgar, Nichols, Smith, Snyderman, Wilfert, and Zweerink*



**School of
Nursing**



School of Nursing



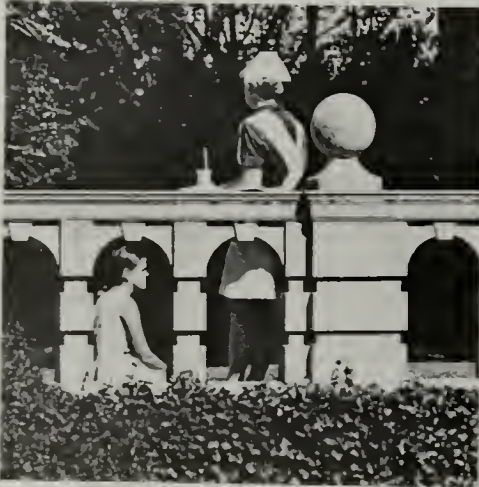
The Nursing Program

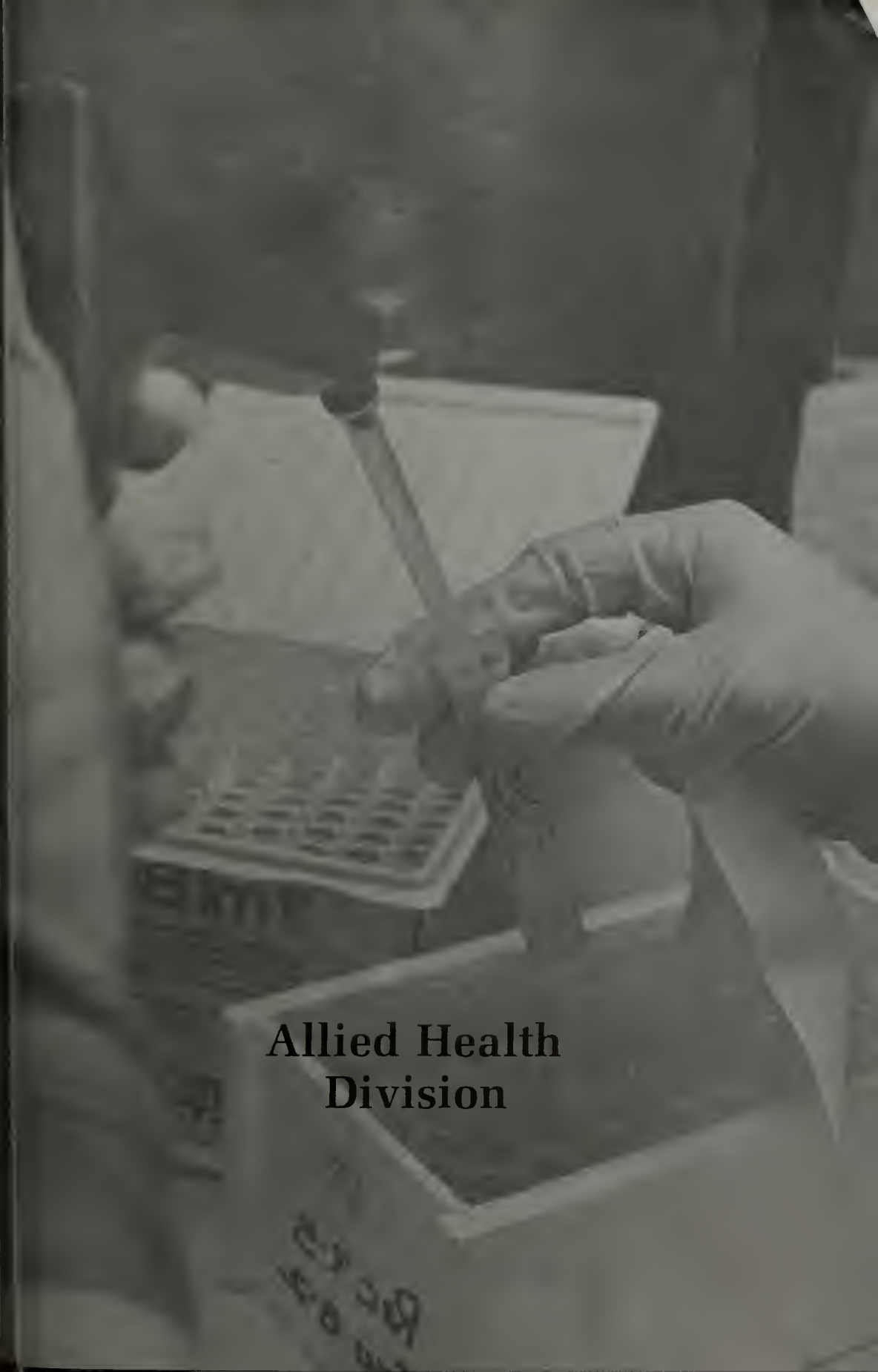
The School of Nursing offers a four year course of study leading to the degree of Bachelor of Science in Nursing. Thirty-two courses including small-group learning experiences and twelve upper division required courses in nursing are necessary to complete the program.

The first two years of the curriculum consist of required and elective courses in liberal arts and basic sciences. The third and fourth years consist of the required courses in the nursing major with provision for electives in arts and sciences or nursing. Opportunities are provided for students to undertake independent studies in nursing.

Early in the junior year, students participate in clinical nursing practice where they acquire knowledge, skills, and attitudes appropriate for professional nursing. Provision for elective courses in every semester enables the student to pursue a secondary or complementary field of interest, including the opportunity to acquire a double major. Option to pursue electives in nursing provides the opportunity for each student to begin specialization in clinical nursing.

Graduates are eligible to apply for examination for licensure as Registered Nurses in any state. Additional information may be obtained by writing for the Duke University Bulletin of Undergraduate Instruction.





**Allied Health
Division**



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Allied Health Division

The Allied Health Programs

The health-services educational programs offered at the Duke University Medical Center that are neither medicine nor nursing are coordinated by the Division of Allied Health. Every effort is made to keep each of these allied health programs closely related to the Medical School departments whose fields they serve.

Several of today's allied health occupations require less than the baccalaureate level of education. Although the Duke University Medical Center has several such programs, they often are taught in junior colleges, technical institutes, or community hospitals. Such training programs in the latter institutions can frequently benefit from resources generally available only from medical centers, e.g., (1) in choosing programs appropriate to their resources and needs, (2) in developing articulated curricula, (3) in upgrading or attracting competent faculty, and (4) in arranging meaningful affiliations between the educational and the clinical care institutions that are required for many of these programs. The division will arrange, whenever possible, to help provide such resources to institutions located within the adjacent geographic region.

In recognition of the growing need for fully qualified teachers, and of the fact that Duke's excellent facilities are limited as to the number of programs and students they will accommodate, increasing emphasis is being given to degree programs. The Bachelor of Health Science degree is now available to qualified students in the Physician's Associate Program, Medical Technology Program, and Pathology Assistant Program and has been authorized for additional programs as warranted. In qualifying for the B.H.S. degree the courses taken must meet the University's high standards of quality, rigor, and relevance. Emphasis is placed upon certain core courses to ensure this quality. During the coming year additional basic science and clinical core courses will be developed to add to courses in human anatomy, pharmacology, human physiology, clinical medicine, and community medicine.

The major allied health programs are briefly described below. More information about individual programs is contained in the *Bulletin of Duke University, 1973-1974, Allied Health Division* and is available upon request. Inquiries regarding specific programs should be directed as indicated for each program; general inquiries relating to the total field or two or more programs should be addressed to the Division of Allied Health, Duke University Medical Center, c/o The Veterans' Administration Hospital, Durham, North Carolina 27705.

Bachelor of Health Science Degree Programs

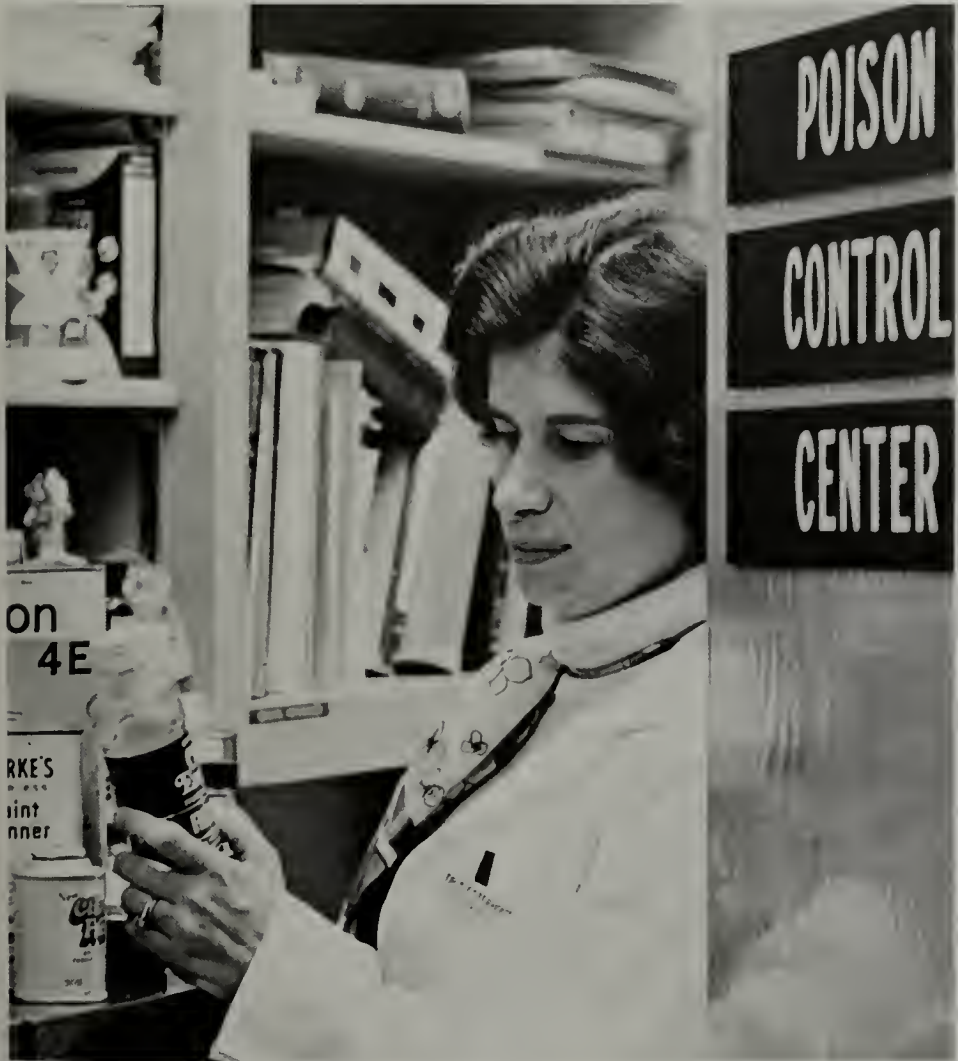
Medical Technology. This program provides instruction in the performance of laboratory procedures which yield patient data used in determining the extent or absence of disease and in evaluating the effectiveness of treatment. The curriculum is structured so that the student may apply his scientific knowledge and skill to specific clinical situations in working with precision instruments and automated electronic equipment. Courses and seminars in educational techniques and laboratory supervision are included in the curriculum. Requests for further information and application forms should be directed to: Program Director, Medical Technology Program, Duke University Medical Center, Durham, North Carolina 27710.

Pathology Assistant. The Pathology Assistant program is designed to meet the growing need for trained personnel to assist the pathologist in the areas of clinical diagnosis and anatomical pathology. Upon completion of the program, the student will have acquired knowledge and skills that will permit him to fill an important role in the medical field. The pathologist is a physician and scientist whose primary functions are the study, research, and diagnosis of disease. He customarily has the responsibility for the direction of the clinical anatomical pathology and surgical pathology services in the hospital. Requests for further information and application forms should be directed to: Kenneth R. Broda, Associate Director, Pathology Assistant Program, Department of Pathology, Duke University Medical Center, Durham, North Carolina 27710.

Physician's Associate. More than a decade ago clinicians at Duke University Medical Center, concerned with the application of new diagnostic and therapeutic procedures, found they could safely and effectively delegate many of their tasks to non-physicians. The physician's associate possesses a broad understanding of medicine and is capable of approaching a patient, eliciting a complete history, performing a thorough examination, organizing the data, and presenting it in such a way that a physician can visualize the medical problem. He then assists the physician in performing the appropriate diagnostic and therapeutic procedures. In addition, physicians' associates provide patient care services such as cast application and removal, wound suturing, dressing changes, after-hour laboratory studies, and assessing and monitoring the progress of ill patients. Duke University Medical Center offers a certificate to those students who meet the requirements of the Physician's Associate Program, but do not have the necessary number of undergraduate hours to qualify for the Bachelor of Health Science degree. Requests for further information and application forms should be directed to: Director of Admissions, Physician's Associate Program, P. O. Box 2914, Community Health Sciences, Duke University Medical Center, Durham, North Carolina 27710.

Master's Degree Programs

Health Administration. The profession of health administration emerged early in this century in response to the increasing demand for health services. Over the years several specific areas of health administration have been identified, most notably; public health administration, hospital administration, medical care organization, and comprehensive health planning. All of these require a common set of managerial skills and a broad knowledge of the health system and its environment. It has been estimated that the system requires approximately 50,000 individuals in positions involving health administration. In recognition of the complexity and importance of hospitals, Duke University established the first graduate program in the nation for the training of hospital administrators in 1930. Request for further information and application forms should be directed to: Admissions Committee, Department of Health Administration, Box 3018, Duke University Medical Center, Durham, North Carolina 27710.



Physical Therapy. The Master of Science degree program is designed to provide a broad foundation in the art and science of physical therapy and to provide opportunities for the development of skills in health administration and supervision, curriculum development and directed teaching in physical therapy, and in advanced clinical education or research. The program is approved by the Council on Medical Education of the American Medical Association in collaboration with the American Physical Therapy Association. Request for applications and further information should be directed to: Jane S. Mathews, Acting Chairman and Director of Graduate Studies, Department of Physical Therapy, Box 3247, Duke University Medical Center, Durham, North Carolina 27710.

Certificate Programs

Clinical Psychology Internship. The Division of Medical Psychology, in cooperation with the Durham Child Guidance Clinic and the Durham Veterans' Administration Hospital, offers internship training in clinical psychology to qualified doctoral students. The program, approved by the American Psychological Association, provides experience in many contexts with a wide diversity of patients. Internship training emphasizes experience in the traditional activities of clinical psychologists: assessment, psychotherapy, and research. Those successfully completing the requirements for internship will be awarded a Duke University Medical Center certificate. Correspondence concerning admission to the program should be directed to: Dr. Derek Shows, Box 2995, Duke University Medical Center, Durham, North Carolina 27710.

Cytotechnology. Progress in the early detection of cancer by the microscopic examination of smears of cell samplings, especially from the female genital tract, has resulted in the specialty of cytotechnology. The cytotechnologist deals with the technical and diagnostic aspects of exfoliative cytology. Graduates of the program are awarded a certificate and are eligible to take the certifying examinations given by the Registry of Medical Technologists of the American Society of Clinical Pathologists. Requests for further information and application forms should be directed to: William W. Johnston, M.D., Department of Pathology, Duke University Medical Center, Durham, North Carolina 27710.

Electrophysiological Technology. In 1961, Duke University Medical Center began its formal program in electrophysiological technology as an expansion of the in-service training program begun in 1955 at the Durham Veterans' Administration Hospital. Every year the laboratories in the Medical Center perform over 4,000 examinations including investigative procedures during brain surgery. Six students are accepted into the program each January and July. Upon successful completion of this program, graduates are awarded a certificate and become eligible to take the certifying examination given by the American Board of Registration of Electroencephalographic Technologists. Requests for further information and application forms should be directed to: W. P. Wilson, M.D., Director, EEG Laboratory, Box 3355, Duke University Medical Center, Durham, North Carolina 27710.

Health Administrators Management Improvement Program. The Health Administrators Management Improvement Program (HAMIP) is conducted by the Department of Health Administration at Duke University specifically to strengthen the management skills of practicing hospital administrators who have not completed formal university-based education in hospital administra-



tion. It is designed to allow the working administrator to acquire skills and knowledge for more effective management of the hospital with a minimum of time away from his job. A certificate is awarded for successful completion of the program. Forms may be obtained from Donald S. Smith, Coordinator, Box 3018, Duke University Medical Center, Durham, North Carolina 27710.

Hospital and Clinical Pharmacy Residency. The Hospital and Clinical Pharmacy Residency is a twelve month post baccalaureate program conducted by the Department of Pharmacy, Duke Hospital, Duke University Medical Center, Durham, North Carolina. The residency is designed to give the graduate pharmacist experience in the administrative aspects of hospital pharmacy management, and to offer advanced training in clinical pharmacy practice. Management of modern drug dispensing systems, such as unit dose drug distribution, intravenous admixture preparation and hyperalimentation formulation, is emphasized. Considerable experience in the patient-care setting is also

gained. Competency in clinical practice and the strengthening of leadership capabilities are stressed in the residency. Requests for further information and application forms should be directed to: Director, Hospital and Clinical Pharmacy Residency, P. O. Box 3089, Duke University Medical Center, Durham, North Carolina 27710.

Medical Speech Pathology. The residency program in medical speech pathology is designed to help meet the need for speech pathologists trained to work in medical centers. Trainees will have graded responsibilities in the Speech Pathology Clinic, which has patients referred for speech and language evaluations following neurosurgery, oral surgery, plastic and reconstructive surgery, and from many other services. In addition, patients with articulation problems or delayed language development, and those with speech disorders related to dental anomalies are seen. A certificate from Duke University Medical Center is awarded each graduate of the program. Requests for application forms and further information should be directed to: Raymond Massengill, Jr., Ed.D., Associate Professor and Director, Medical Speech Pathology, Duke University Medical Center, Durham, North Carolina 27710.

Nuclear Medicine Technology. In the fall of 1967 the Division of Nuclear Medicine in the Department of Radiology of the Duke Medical Center began a full year program in Nuclear Medicine Technology. This program is approved by the American Medical Association, and upon completion of studies the student is awarded a certificate and becomes eligible to take the ARRT and RMT (ASCP) registry examinations in Nuclear Medicine Technology. Requests for further information and application forms should be directed to: Allied Health Education Building, Veterans' Administration Hospital, Durham, North Carolina 27705.

Nurse Anesthesiology. In 1931 Duke University Medical Center's Department of Anesthesiology established a program for registered nurses to further their study of anesthesiology. Students learn about the physiopharmacological effects of anesthesia and related drugs, the proper techniques for their administration, and the management of an entire treatment plan for patients requiring anesthesia. Upon successful completion of the required qualifying examination, graduates are eligible for membership in the American Association of Nurse Anesthetists. Requests for further information and application forms should be directed to: Mary B. Campbell, RN CRNA, P. O. Box 3094, Duke University Medical Center, Durham, North Carolina 27710.

Pastoral Care and Counseling. A graduate program in pastoral care and counseling is available to clergy of all religious groups. There are four program options: a single unit of clinical pastoral education, an internship, a residency, and a fellowship. All are designed to train ordained individuals who desire to specialize in pastoral care and counseling or to enhance their skills as parish clergy. Those who enroll in the program will be required to serve as chaplains or as pastoral counselors in the Medical Center or in the community of Durham. All program options are approved by the Association for Clinical Pastoral Education, Inc. Requests for application and further information about any of the programs should be directed to the Coordinator of Clergy Training, Box 3112, Duke University Medical Center, Durham, North Carolina 27710.

Radiologic Technology Specialties. Plans are under development for programs in specialties for qualified radiologic technologists. Requests for further information regarding the status of these programs should be directed

to the Division of Allied Health, Duke University Medical Center, c/o The Veterans' Administration Hospital, Durham, North Carolina 27705.

Respiratory Therapy. Respiratory Therapy is one of the newest and fastest growing allied health specialties in the United States today, due to the increasing incidence of respiratory diseases in our society and the increasing complexity of the various modalities used in the treatment and diagnosis of these diseases. The respiratory therapist must be an expert in the therapeutic uses of such aids to the breathing process as medical gases, oxygen administering apparatus, humidity and aerosol devices, positive pressure ventilation, mechanical airways, and cardiopulmonary resuscitation. In September, 1970, the Duke University Medical Center and Durham Technical Institute initiated an associate degree program in respiratory therapy under the medical direction of the Department of Anesthesiology. It is accredited by the Council on Medical Education of the American Medical Association and approved by the North Carolina State Board of Education. At the completion of this program the student will be awarded the Associate in Applied Science degree and be qualified to participate in the national registry examination. Requests for further information and application forms should be directed to: Education Coordinator, Respiratory Therapy Program, Box 3094, Duke University Medical Center, Durham, North Carolina 27710.



Appendix

ROSTER OF HOUSE STAFF BY DEPARTMENTS

Medicine

Chief Residents: Edward W. Holmes, M.D. (Pennsylvania, 1967); Charles H. Scoggin, M.D. (Colorado, 1970).

Senior Residents: Warner M. Burch, M.D. (Bowman Gray, 1971); Miles Elmore, M.D. (South Carolina, 1971); Clyde D. Ford, M.D. (Utah, 1971); Conrad C. Fulkerson, M.D. (Missouri, 1969); Jerry M. Herron, M.D. (Ohio State, 1965); Michael R. Knowles, M.D. (North Carolina, 1971); F. M. Simmons Patterson, Jr., M.D. (Pennsylvania, 1971); John R. Rice, M.D. (Miami, 1968); James K. Roche, M.D. (Pennsylvania, 1969); Richard J. Roller, M.D. (Case Western Reserve, 1971); Timothy C. Smith, M.D. (Ohio, 1971).

Junior Residents: John R. Ball, M.D. (Duke, 1971); Albert M. Bernath, M.D. (Pittsburgh, 1972); Charles F. Bethea, M.D. (Oklahoma, 1971); Ernest R. Braasch, M.D. (State Univ. of New York, Downstate Med. Center, 1971); Jeffrey M. Cary, M.D. (Colorado, 1972); Thomas M. Dugan, M.D. (Pittsburgh, 1972); Joseph W. Fay, M.D. (Ohio, 1972); John N. Glover, M.D. (Northwestern, 1971); Stanley W. Gruhn, M.D. (Iowa, 1972); C. Earl Guthrow, M.D. (Pennsylvania, 1969); Kathryn Hale, M.D. (Oklahoma, 1972); Alan K. Hatfield, M.D. (Ohio, 1972); Isabel V. Hoverman, M.D. (Duke, 1972); Bruce R. Kaden, M.D. (Illinois, 1972); Douglas G. Kelling, M.D. (Harvard, 1972); John E. Lawrence, M.D. (Duke, 1972); James M. Love, M.D. (Duke, 1972); Joseph R. McClellan, M.D. (Georgetown, 1972); Frank A. McGrew, III, M.D. (Case Western Reserve, 1970); John R. McRae, M.D. (Duke, 1972); John F. Metcalf, M.D. (Northwestern, 1969); Carlisle L. Morgan, M.D. (Miami, 1972); Jeane M. Neskodny, M.D. (Duke, 1971); Lawrence S. Peters, M.D. (New York Univ., 1972); James L. Pool, M.D. (Oklahoma, 1972); Robert B. Waterbor, M.D. (Duke, 1972); Jeffrey W. Wilson, M.D. (Duke, 1972); Robert T. Witty, M.D. (Miami, 1972).

Interns: Ross A. Abrams, M.D. (Pennsylvania, 1973); Norman E. Adair, M.D. (Missouri, 1973); Collins Baber, M.D. (Duke, 1973); William R. Berry, M.D. (Duke, 1973); Ben P. Bradenham, M.D. (Jefferson, 1973); Danis J. Christensen, M.D. (Utah, 1973); Donald J. Collins, M.D. (Duke, 1972); Pamela B. Davis, M.D. (Duke, 1973); Isabelle R. Faeder, M.D. (Duke, 1973); Mark N. Feinglos, M.D. (McGill, 1973); John R. Feussner, M.D. (Vermont, 1973); Robert D. Fusco, M.D. (Pittsburgh, 1973); Robert W. Gilbert, M.D. (Duke, 1973); Larry S. Green, M.D. (Utah, 1973); Gary P. Hansen, M.D. (Pennsylvania, 1973); Barton F. Haynes, M.D. (Baylor, 1973); David A. Hester, M.D. (Oklahoma, 1973); William L. High, M.D. (Duke, 1973); Michael C. Hindman, M.D. (Illinois, 1973); Stephen D. Holt, M.D. (Texas, 1973); Russel E. Kaufman, M.D. (Ohio, 1973); John G. Kelton, M.D. (Univ. of Western Ontario, 1973); Lanning B. Kline, M.D. (Duke, 1973); Sterling J. Laaveg, M.D. (Iowa, 1973); David H. Mason, Jr., M.D. (Duke, 1972); Kenneth S. McCarty, M.D. (Duke, 1972); William M. McClatchey, M.D. (Georgia, 1972); James E. Niedel, M.D. (Miami, 1973); David J. Oblon, M.D. (Pennsylvania, 1973); Gary S. Raizes, M.D. (Duke, 1973); Garrett L. Rogers, M.D. (Texas, 1973); Steven L. Sabol, M.D. (New York Univ., 1973); Douglas D. Schocken, M.D. (Duke, 1973); John B. Simpson, M.D. (Duke, 1973); Robert J. Smith, M.D. (Harvard, 1973); Hugh W. Stancill, M.D. (Mississippi, 1973); William W. Stead, M.D. (Duke, 1973); Frederic I. Weinbaum, M.D. (New York Univ., 1973); Leonard A. Zwelling, M.D. (Duke, 1972).

Fellows: B. Titus Allen, M.D. (Duke, 1966); Richard R. Almon, Ph.D. (Illinois, 1971); Judith C. Andersen, M.D. (Jefferson, 1969); Clarence W. Applegate, M.D. (Harvard, 1970); Ronald Aronson, M.D. (Florida, 1969); John T. Baker, M.D. (Harvard, 1971); Anne Phillips Ball, Ph.D. (Auburn, 1970); Stephen C. Beuttel, M.D. (Duke, 1971); Harvey K. Bucholtz, M.D. (State Univ. of New York, Upstate Med. Center, 1968); Ernest Buxton, M.D. (Virginia, 1967); Joseph R. Calder, Jr., (Pennsylvania, 1970); Laurence E. Carroll, M.D. (Pennsylvania, 1971); Richard S. Cohen, M.D. (Albert Einstein, 1966); Michael D. Coleman, M.D. (Duke, 1970); Francis F. Collins, M.D. (Vermont, 1968); George Cooper, IV, M.D. (Cornell, 1968); Jonathan Dranov, M.D. (Pennsylvania, 1969); Marc K. Drezner, M.D. (Pittsburgh, 1970); Fortune A. Dugan, M.D. (Louisiana State, 1968); Julian Duttera, M.D. (Duke, 1968); Robert J. Emslie, M.D. (Duke, 1968); Michael Entmacher, M.D. (Duke, 1968); Earl W. Ferguson, M.D. (Texas, 1970); John J. Gallagher, M.D. (Georgetown, 1968); Marcia M. Goldner, Ph.D. (Duke, 1972); Dorma Gottlieb, Ph.D. (Tennessee, 1973); Donald A. Greeley, M.D. (Illinois, 1971); Robert H. Harris, M.D. (Georgia, 1966); Carl W. Hartman, M.D. (New York, 1969); Thomas W. Hauch, M.D. (Northwestern, 1972); John W. Hirshfeld, M.D. (Cornell, 1969); McDonald K. Horne, M.D. (Duke, 1971); Benjamin Johnson, M.D. (Texas, 1970); Michael L. Johnson, M.D. (Colorado, 1972); Steven S. Juk, Jr., M.D. (Duke, 1971); Joseph A. Kisslo, M.D. (Hahnemann, 1967); Lawrence S. Koons, M.D. (Temple, 1967); Lee Limbird, Ph.D. (North Carolina, 1973); Thomas Long, M.D. (Bowman Gray, 1966); Lip Ping Low, M.D. (Univ. of Singapore, 1965); John H. Machledt, Jr., M.D. (Johns Hopkins, 1968); Donald Mandetta, M.D. (Duke, 1968); Albert A. Maniscalco, M.D. (New York, 1966); James R. Margolis, M.D. (Illinois, 1968); James F. McNeer, M.D. (Duke, 1973); Hugh C. Miller, M.B. Ch.B. (Edinburgh, 1966);

Douglas F. Newton, M.D. (Syracuse, 1968); William P. Nixon, M.D. (Virginia, 1968); William Oelrich, M.D. (Duke, 1972); James W. Plonk, M.D. (Duke, 1968); Richard A. Reinhart, M.D. (Ohio, 1971); Frank Rivas, M.D. (Central Univ. Venezuela, 1964); Mary C. Rose, Ph.D. (Case Western Reserve, 1970); W. T. Rowe, M.D. (North Carolina, 1969); Edward T. Samuel, M.D. (Duke, 1971); Geoffrey Sherwood, M.D. (Duke, 1968); Peter Smith, Ph.D. (Tennessee, 1973); John W. Starr, M.D. (Duke, 1972); Richard A. Stone, M.D. (Tufts, 1970); Robert H. Svenson, (Chicago, 1969); Andrew Tonkin, M.D. (Melbourne, 1967); Laura Tres, M.D. (Faculty of Med., U.B.A., Argentina, 1961); Stephen Turner, Ph.D. (Duke, 1971); Martin Van der Weyden, M.D. (Sydney, 1966); Robert A. Warner, M.D. (State Univ. of New York, Upstate Med. Center, 1969); Stafford G. Warren, M.D. (Rochester, 1969); Robert K. Webb, M.D. (West Virginia, 1967); Robert L. R. Wesley, Ph.D. (Duke, 1974); John R. Wolfe, M.D. (Virginia, 1967); Phillip B. Woodhall, M.D. (Duke, 1972); Thomas E. Worthly, Ph.D. (Tennessee, 1972).

DIVISION OF NEUROLOGY

Chief Residents: James McNamara, M.D. (Michigan, 1968); David B. Rosenfield, M.D. (Illinois, 1970).

Residents: Stanton B. Elias, M.D. (Pittsburgh, 1972); S. Mitchell Freedman, M.D. (Pennsylvania, 1972); Geoffrey B. Hartwig, M.D. (Duke, 1972); Anthony Jackson, M.D. (Yale, 1972); Charles McClure, M.D. (Duke, 1972); Alan M. Nadel, M.D. (Pittsburgh, 1968); Vinod Patel, M.D. (Univ. of Kerala, 1970); Ronald M. Podell, M.D. (Cornell, 1971); Andrese J. Steck, M.D. (Univ. of Lausanne and Berne, Switzerland, 1969).

DIVISION OF DERMATOLOGY

Chief Residents: Melvin Elson, M.D. (Duke, 1969); John R. Vydareny, M.D. (Michigan, 1968).

Residents: Edgar D. Allen, M.D. (Utah, 1972); Morris S. Minton, Jr., M.D. (Texas, 1969); Wilbur R. Reschly, M.D. (Iowa, 1971); William E. Tate, M.D. (Med. Coll. of South Carolina, 1970); W. Harrison Turner, III, M.D. (Virginia, 1968).

Obstetrics and Gynecology

Chief Residents: Sezer Aksel, M.D. (Duke, 1970); Joseph S. Buffington, M.D. (Duke, 1971); Stephen L. Curry, M.D. (Syracuse, 1970); Forrest Smith, M.D. (Duke, 1970).

Assistant Residents: Steven R. Fore, M.D. (Bowman Gray, 1968); Michael D. Fried, M.D. (New York, 1971); John M. Gilkey, Jr., M.D. (North Carolina, 1972); Samuel J. Gilmore, M.D. (Indiana, 1968); Arthur F. Haney, M.D. (Arizona Med. Coll., 1972); Charles W. Lomax, M.D. (Bowman Gray, 1968); David E. Miller, M.D. (Duke, 1974); Joseph M. Miller, Jr., M.D. (Duke, 1973); S. Malone Parham, M.D. (North Carolina, 1973); John A. Rock, M.D. (Louisiana State, 1972); Bruce Romig, M.D. (George Washington, 1971); Mona M. Shangold, M.D. (Duke, 1972); Stanley J. Rosenberg, M.D. (Michigan, 1968); Robert J. Stillman, M.D. (Georgetown, 1973); Thomas N. Suci, M.D. (North Carolina, 1973); Lindian J. Swaim, Jr., M.D. (North Carolina, 1973); Clifton C. Wheeler, M.D. (Duke, 1972).

Faculty Fellows: Lynn G. Borchert, M.D. (Michigan, 1968); Ian D. Duncan, M.B., Ch.B. (Saint Andrews Univ., 1970); Jarlath MacKenna, M.D. (Univ. Coll., Dublin, 1969); Marcos J. Pupkin, M.D. (Univ. Chile, 1960); Daniel H. Riddick, M.D. (Duke, 1967); John C. Weed, Jr., M.D. (Tulane, 1968); R. Herbert Wieve, M.D. (Univ. of Saskatchewan, 1962).

Ophthalmology

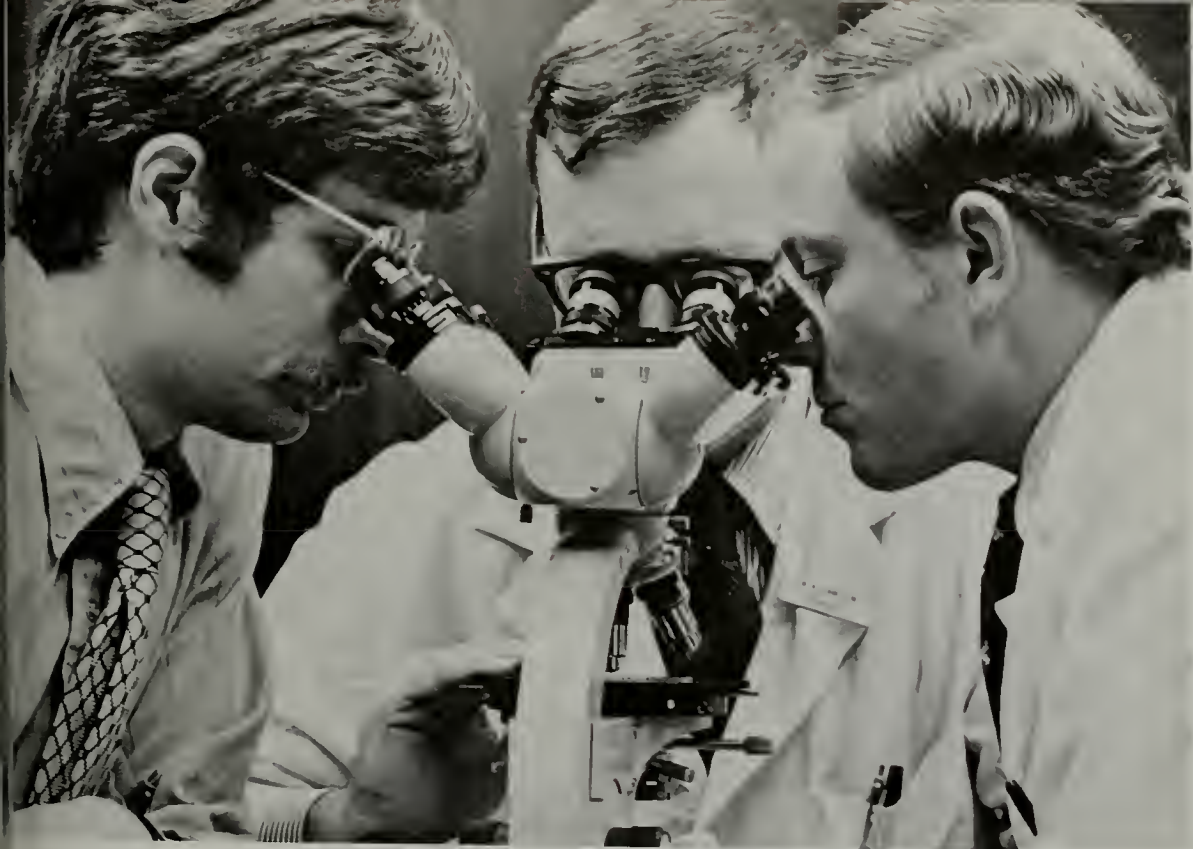
Chief Residents on rotating basis.

Residents: Robert E. Baker, M.D. (Med. Coll. of Virginia, 1968); C. Richard Epes, M.D. (Virginia, 1968); M. Bruce Shields, M.D. (Oklahoma, 1966).

Assistant Residents: Charles L. Baltimore, Jr., M.D. (Virginia, 1969); Nelson B. Dobbs, Jr., M.D. (Med. Coll. of Georgia, 1968); H. Randolph Frank, M.D. (Alabama, 1969); Gary N. Foulks, M.D. (Columbia, 1970); Peter M. Holland, M.D. (New York Med. Coll., 1969); Randal J. Williams, M.D. (Duke, 1968); Paul R. Yoder, Jr., M.D. (Virginia, 1967).

Pathology

Assistant Residents: Carlos Abramowsky, M.D. (Panama, 1968), James Boylston, M.D. (Duke, 1969), Carol G. Brown, M.D. (St. Louis, 1970), John D. Butts, M.D. (Duke, 1972), Neil M. Dunn, M.D. (Duke, 1969), Americo A. Gonzalvo, M.D. (Univ. of Madrid, Spain, 1966), James Henry, M.D. (Tennessee, 1971), Albert S. Hollingsworth, M.D. (Med. Coll. of Georgia, 1968), Lewis G.



Lefer, M.D. (Virginia, 1969), Morton H. Levitt, M.D. (Duke, 1972), Gilbert G. Maw, M.D. (Duke, 1970), James Miller, M.D. (Duke, 1970), Peter S. Noce, M.D. (Case Western Reserve, 1971), Ph.D. (Case Western Reserve, 1968), Linda E. Norton, M.D. (Duke, 1971), Fred Odere, M.D. (George Washington, 1970), Patricia O'Shea, M.D. (Johns Hopkins, 1970), R.J. Slaughter, M.D. (Chicago, 1967), Raymond J. Squires, M.D. (Emory, 1969), Lawrence A. Virgilio, M.D. (State Univ. of New York, Upstate Med. Center, 1970).

Interns: James Ellett, M.D. (Duke, 1973), Jay Gold, M.D. (Harvard, 1973), Salvatore Pizzo, M.D., (Duke, 1973), Ph.D. (Duke, 1973), Jared Schwartz, M.D. (Duke, 1973).

Fellows: William R. Anderson, M.D. (Miami, 1968), Dana Copeland, M.D. (Duke, 1972), Marshall D. Graham, Ph.D. (Duke, 1971), Robin T. Vollmer, M.D. (Duke, 1967).

Pediatrics

Senior Residents: Roy C. Haberkern, M.D. (Duke, 1969); Ziad H. Idriss, M.D. (Amer. Univ., Beirut, 1970); Lee Jordan, M.D. (Med. Coll. of Georgia, 1971); Peter C. Kenny, M.D. (Harvard, 1971) Aglaia O'Quinn, M.D. (Duke, 1965); Kirk N. Starr, M.D. (Emory, 1971).

Junior Residents: Ben Brouhard, M.D. (Indiana, 1972); Robert Cunningham, III., M.D. (Wisconsin, 1972); Robert Fineman, M.D. (State Univ. of New York, Downstate Med. Center, 1972); James Gessner, M.D. (Harvard, 1972); Andrew Hoover, M.D. (Yale, 1972); Richard Inwood, M.D. (Yale, 1972); Drew Kelts, M.D. (Boston, 1972); Dennis Ownby, M.D. (Ohio, 1972); Greg Prazar, M.D. (Case Western Reserve, 1972); Paul Reinstein, M.D. (New York, 1972).

Interns: Richard Carroll, M.D. (Albany, 1973); Robert Chessin, M.D. (Johns Hopkins, 1973); Dennis Clements, M.D. (Rochester, 1973); David Coulter, M.D. (Yale, 1973); Kenneth Dunnigan, M.D. (California at San Diego, 1973); L. Matthew Frank, M.D. (Connecticut, 1973); David Fuller, M.D. (Washington, 1973); Thomas A. Glassman, M.D. (Case Western Reserve, 1973); C. Boyette Hunter, M.D. (Alabama, 1973); Andy Koman, M.D. (Duke, 1973); Lee Leserman, M.D. (Pritzker, 1973); Michael Reing, M.D. (Georgetown, 1973); Spencer Weig, M.D. (Mt. Sinai, 1973).

Fellows: Gerald Ahronheim, M.D. (Michigan, 1966); David Benjamins, M.D. (Wayne State, 1963); D. Woodrow Benson, M.D. (Duke, 1972); Sam Edwards, M.D. (Duke, 1968); William Maurer, M.D. (Ohio State, 1966); James McGeady, M.D. (Creighton, 1967); Mary Ann Passero, M.D. (Harvard, 1969); John O'Shea, M.D. (Johns Hopkins, 1970); Robert Schwartz, M.D. (Florida, 1968); Gerald Serwer, M.D. (Duke, 1971); Michael Sisk, M.D. (Bowman Gray, 1967); Sandra Smith, M.D. (Duke, 1967); James Storer, M.D. (Louisiana State, 1969); William Topper, M.D. (Jefferson, 1971); Richard Weaver, M.D. (Florida, 1968); John P. Wexler,* M.D. (Duke, 1970); John Whisant, M.D. (Bowman Gray, 1968); Susan Wolschina, M.D. (New York, 1970).

*Terminated, August, 1973.

Psychiatry

Chief Residents: Walter A. Scarborough, Jr., M.D. (Duke, 1967).

Residents: Thomas P. Bridge, M.D. (Med. Coll. of Virginia, 1971); Leslie F. Major, M.D. (Duke, 1971); Frank A. Miller, M.D. (Buffalo, 1970); Paul C. Mohl, M.D. (Duke, 1971); James T. Moore, M.D. (Missouri, 1971); Eric W. Peterson, M.D. (Duke, 1971); Steven G. Potkin, M.D. (Washington Univ., 1971).

Assistant Residents: Albert R. Alden, M.D. (Texas, 1972); Robert S. Benson, M.D. (Emory, 1968); Dan G. Blazer, II, M.D. (Tennessee, 1969); Lesley K. Braasch, M.D. (State Univ. of New York, Downstate Med. Center, 1970); Nancy T. Butts, M.D. (Duke, 1972); Sam Castellani, M.D. (Wayne State, 1969); William L. Clapp, M.D. (New Mexico, 1969); Thomas P. Cornwall, M.D. (Northwestern, 1970); Glenn C. Davis, M.D. (Duke, 1972); Allen R. Dyer, M.D. (Duke, 1972); Gene S. Gordon, M.D. (Duke, 1972); Lee H. Haller, M.D. (Michigan, 1972); James O. Hoover, M.D. (Iowa, 1966); Michael A. Kalm, M.D. (State Univ. of New York, Downstate Med. Center, 1970); Robert S. McConaughy, M.D. (Duke, 1973); Robert D. Miller, M.D. (Duke, 1973); William M. Petrie, M.D. (Vanderbilt, 1972); Ernest A. Raba, M.D. (Texas, 1972); Daphne A. Rosenblitt, M.D. (Duke, 1973); Donald L. Rosenblitt, M.D. (Duke, 1973); W. James Ryan, M.D. (Louisiana State, 1972); Kenneth L. Sheffield, M.D. (North Carolina, 1971); Jean G. Spaulding, M.D. (Duke, 1972); Thomas N. Stephenson, M.D. (Michigan, 1972); Ervin M. Thompson, M.D. (Vanderbilt, 1972); Stephen J. Weiler, M.D. (Ohio State, 1973); James R. Weiss, M.D. (Louisiana State, 1973).

Fellows: William H. Beute, M.D. (Wayne State, 1969); Helen E. Courvoisie, M.D. (South Carolina, 1970); Robert L. Fisher, M.D. (Colorado, 1967); William N. Grosch, M.D. (Albany Med. Coll., 1970); James R. Johnson, M.D. (Duke, 1966); Jaejong Kim, M.D. (Seoul Univ., S. Korea, 1963); Fernando Ruiz, M.D. (Univ. of Chile, 1965).

Radiology

Chief Resident: Walter H. Forman, M.D. (Florida, 1970)

Residents: Ronald B. Addlestone, M.D. (Emory, 1968); Henry Alperin, M.D. (Med. Coll. of Virginia, 1968); Eric D. Alpert, M.D. (Duke, 1970); Kenneth I. Bird, M.D. (Temple, 1968); Howard Cockrill, Jr., M.D. (Arkansas, 1968); Craig M. Coulam, M.D. (Duke, 1971); Larry M. Crane, M.D. (Baylor, 1968); Peter J. Dempsey, M.D. (Louisville, 1966); Saleh A. Fetouh, M.D., Ph.D. (North Carolina, 1972); Parham R. Fox, M.D. (Med. Coll. of Virginia, 1970); Robert Gordon, M.D. (Duke, 1967); Z. Stanley Herc, M.D. (New Jersey Coll. of Med., 1967); Thomas M. Jamison, M.D. (Indiana, 1972); Michael Johnson, M.D. (Colorado, 1972); Dan Kramer, M.D. (Virginia, 1970); James L. Lowry, M.D. (Baylor, 1969); Stuart J. Masters, M.D. (Duke, 1969); Joseph P. Miller, M.D. (Duke, 1970); Michael Moses, M.D. (Emory, 1970); Patrick H. Moulton, M.D. (Tennessee, 1968); Ebrahim Norouzi, M.D. (Tehran, Iran, 1967); Karl T. Noell, M.D. (Rochester, 1967); Terrence A. Oddson, M.D. (South West Texas, 1969); Robert Ornitz, M.D. (Oklahoma, 1971); Norman T. Pay, M.D. (Philippines, 1968); Ralph B. Perkerson, M.D. (Med. Coll. of Georgia, 1971); Randall S. Preissig, M.D. (Tennessee, 1971); Garrett F. Saikley, M.D. (Duke, 1971); Robert Scruggs, M.D. (Tennessee, 1969); Richard R. Six, M.D. (West Virginia, 1968); David L. Sommerville, M.D. (Pennsylvania, 1968); Dale R. Shaw, M.D. (Duke, 1973); Daniel E. Stump, M.D. (Ohio State, 1969); William R. Taylor, M.D.; (Case Western Reserve, 1973); William N. Thompson, M.D. (Pennsylvania, 1969); James W. Tyson, M.D. (Arkansas, 1968); Jack Gardner Wall, M.D. (North Carolina, 1968); Michael D. Weaver, M.D. (Tennessee, 1968); Donald B. Williams, M.D. (Alabama, 1969); Henry O. Williams, M.D. (Baylor, 1970); Lynn Witherspoon, M.D. (Georgia, 1969).

Surgery

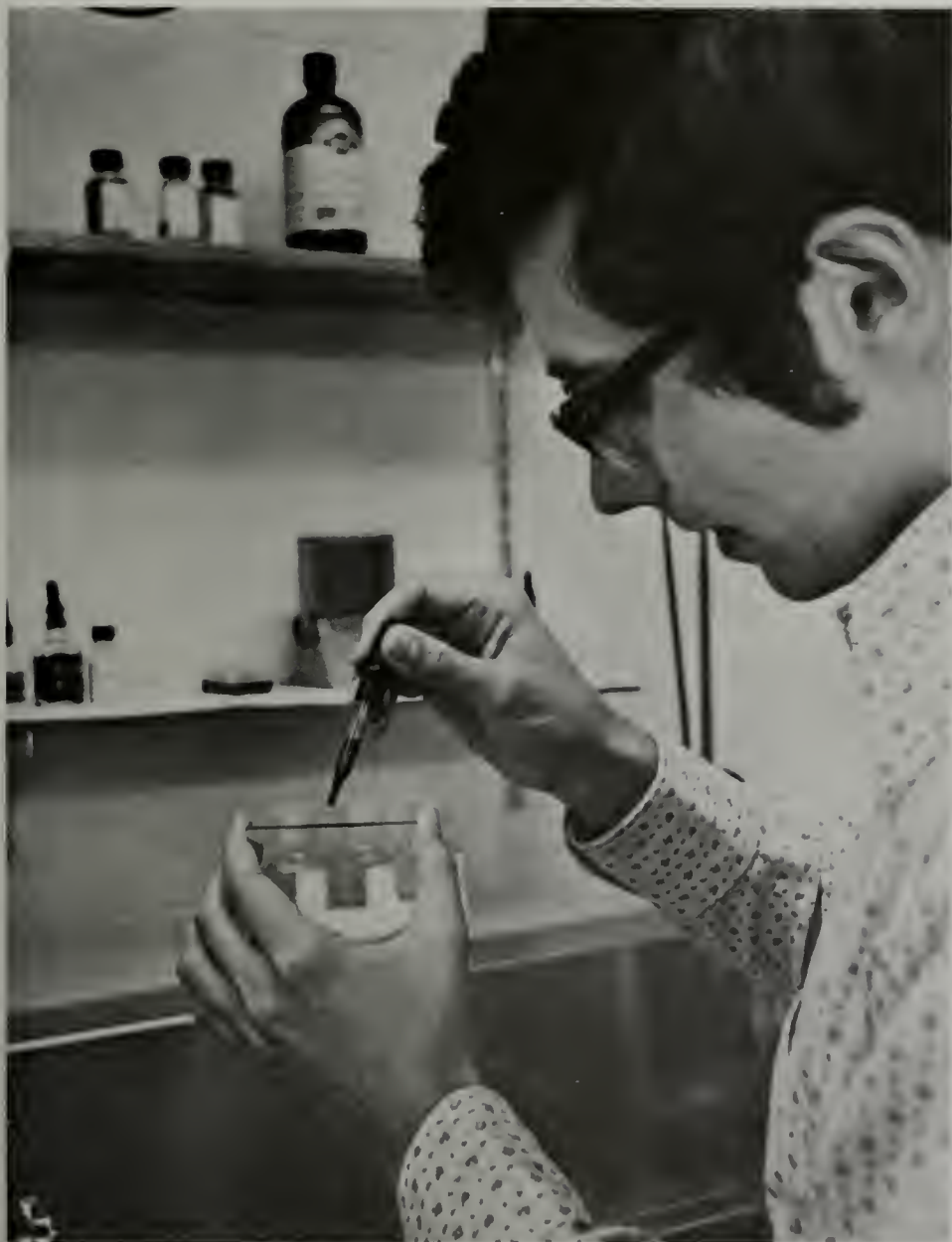
DIVISION OF GENERAL AND THORACIC SURGERY

Instructors and Teaching Scholars: James A. Alexander, M.D. (Duke, 1966); Andrew S. Wechsler, M.D. (State Univ. of New York, Downstate Med. Center, 1964).

Instructors and Chief Residents: Thomas M. Daniel, M.D. (Virginia, 1964); Robert H. Jones, M.D. (Johns Hopkins, 1965); Kenneth P. Ramming, M.D. (Duke, 1965).

Fellows: William R. Beltz, M.D. (Illinois, 1970); William C. DeVries, M.D. (Utah, 1970); Andre Duranceau, M.D. (Univ. of Montreal, 1967); James C. A. Fuchs, M.D. (Johns Hopkins, 1964); William G. Goodman, M.D. (Duke, 1972); John P. Grant, M.D. (Chicago, 1969); Richard O. Gregory, M.D. (Indiana, 1971); John A. Holland, M.D. (Hahnemann, 1966); Stephen A. Mills, M.D. (McGill, 1971); David K. Wellman, M.D. (Duke, 1972).

Senior Assistant Residents: Robert P. Barnes, M.D. (Duke, 1971); Jimmy L. Cox, M.D. (Tennessee, 1967); Fred A. Crawford, Jr., M.D. (Duke, 1967); M. Wayne Flye, M.D. (North Carolina, 1967); Allan M. Gottlieb, M.D. (Univ. of Witwatersrand, 1960); John W. Hammon, Jr., M.D. (Tulane, 1968); Kent W. Jones, M.D. (Utah, 1969); Roger C. Millar, M.D. (Utah, 1969);



Richard A. Perryman, M.D. (St. Mary's Hospital Med. School, England, 1967); Lewis H. Stocks, III, M.D. (Marquette, 1971); John W. Yarbrough, M.D. (Bowman Gray, 1967).

Assistant Residents: Peter G. Chikes, M.D. (North Carolina, 1972); Thomas Morgan Dreyer, M.D. (Illinois, 1972); David P. Hughes, M.D. (Jefferson, 1972); Leonard H. Kleinman, M.D. (New York Univ., 1970); George Staples Leight, Jr., M.D. (Duke, 1972); Seth H. Lowell, M.D. (Duke, 1972); John D. Lucey, M.D. (Hahnemann, 1970); Michael H. Metzler, M.D. (Albany Med. Coll., 1972); Randall G. Michel, M.D. (Duke, 1971); Thomas C. Militano, M.D. (Case Western Reserve, 1970); Glenn E. Newman, M.D. (Duke, 1972); George A. Parker, M.D. (Boston, 1972); Harold R. Reeve, M.D. (Pennsylvania, 1972); John L. Rendall, III, M.D. (Duke, 1972); Glen R. Rhodes, M.D. (Duke, 1972); Lary A. Robinson, M.D. (Washington Univ., 1972); William C. Sharer, M.D. (Northwestern, 1972); William Alan Somers, M.D. (Duke, 1972); Lee A. Whitehurst, M.D. (North Carolina, 1972).



First Year Residents: Ronald M. Barton, M.D. (Kansas, 1973); James W. Battaglini, M.D. (Rochester, 1973); Ralph M. Bolman, III, M.D. (St. Louis, 1973); Martin J. Conley, Jr., M.D. (Duke, 1973); Charles H. Edwards, II, M.D. (North Carolina, 1973); William S. Fisher, M.D. (Duke, 1973); William P. Garth, Jr., M.D. (Tulane, 1973); Gregory S. Georgiade, M.D. (Duke, 1973); William P. Graper, M.D. (McMaster, Canada, 1973); John B. Hanks, M.D. (Rochester, 1973); William T. Hardaker, Jr., M.D. (Duke, 1973); Thomas J. Limbird, M.D. (Duke, 1973); Jorge L. Lockhart, M.D. (Faculty of Montevideo, Uruguay, 1973); James E. Lowe, M.D. (Duke, 1973); Thomas H. Marsicano, M.D. (Ohio State, 1973); Jon F. Moran, M.D. (Washington, 1973); Jeffrey A. Norton, M.D. (State Univ. of New York, Upstate Med. Center, 1973); Roger H. Ost Dahl, M.D. (Duke, 1973); Harvey I. Pass, M.D. (Duke, 1973); Larry Slade, M.D. (Duke, 1973); Thomas L. Spray, M.D. (Duke, 1973); James H. Wood, M.D. (Johns Hopkins, 1973).

DIVISION OF NEUROSURGERY

Instructors and Chief Residents: Michael Dogail, M.D. (McGill, Canada, 1970); Selvadurai Sivalingam, M.D. (Singapore, 1965).

Assistant Residents: Charles C. Duncan, Jr., M.D. (Duke, 1972); James Fulghum, III, M.D. (North Carolina, 1971); John R. Leonard, III, M.D. (North Carolina, 1970); Walter J. Oakes, M.D. (Duke, 1972); Stephen C. Robinson, M.D. (Duke, 1967); Robert F. Wilfong, M.D. (Duke, 1967); Ronald E. Woosley, M.D. (Kentucky, 1968); David S. Zorub, M.D. (Tulane, 1970).

DIVISION OF ORAL SURGERY

Instructor and Chief Resident: Howard B. Mallett, D.D.S. (West Virginia, 1968).

Assistant Resident: Ryland T. Traynham, D.D.S. (Med. Coll. of Virginia, 1968).

Intern: Dewey G. Carter, D.D.S. (North Carolina, 1968).

DIVISION OF ORTHOPAEDIC SURGERY

Instructors and Chief Residents: James P. Aplington, M.D. (Johns Hopkins, 1966); William A. Bailey, M.D. (Kansas, 1966); Neil E. Green, M.D. (Albany Med. Coll., 1968); Jay E. Hopkins, M.D. (Duke, 1968); James A. Pressly, M.D. (North Carolina, 1966); Richard K. Straley, M.D. (Pennsylvania, 1966).

Assistant Residents: Robert S. Adelaar, M.D. (Pennsylvania, 1970); Armando Bendana, M.D. (Univ. of San Carlos, 1969); Donald S. Bright, M.D. (Maryland, 1967); William A. Carr, M.D. (Duke, 1966); James D. Dalton, M.D. (Duke, 1971); Ollie Edmunds, M.D. (Florida, 1967); Andre Eglevsky, Jr., M.D. (Tufts, 1967); Mark S. Feierstein, M.D. (State Univ. of New York, Downstate Med. Center, 1969); Lamar L. Flemming, M.D. (Georgia, 1965); Frank B. Gray, M.D. (North Carolina, 1969); Forney Hutchinson, M.D. (Duke, 1968); Philip K. Keats, M.D. (Duke, 1969); Moheb S. Moneim, M.D. (Cairo Univ., 1963); William G. Moorefield, M.D. (Duke, 1969); Rodney A. Mortenson, M.D. (Southern California, 1967); Mitchel C. Newman, M.D. (Louisville, 1968); Thomas P. Nipper, M.D. (Loyola-Stritch, 1971); Robert J. Ruderman, M.D. (Rochester, 1968); James R. Schwartz, M.D. (Johns Hopkins, 1971); John W. Shaffer, M.D. (Maryland, 1969); Asif Sheikh, M.D. (Dow Med. Coll., Karachi, Pakistan, 1967); Jan Stasikowski, M.D. (Duke, 1968); Robert E. Stein, M.D. (State Univ. of New York, Downstate Med. Center, 1967); Charles V. Taft, M.D. (Duke, 1968); Alex R. Verhoogen, M.D. (California at Irvine, 1968); Garron G. Weiker, M.D. (Michigan, 1966); Kenneth E. Wood, M.D. (Florida, 1970); Thomas E. Woodworth, M.D. (Michigan, 1969).

Fellows: John Euliano, M.D. (Georgetown, 1969); Raymond J. Groves, M.D. (London Univ., 1964).

DIVISION OF OTOLARYNGOLOGY

Instructors and Chief Residents: Larry P. Conrad, M.D. (Bowman Gray, 1969); James T. Lowe, Jr., M.D. (Georgia, 1969); Toby S. Morgan, Jr., M.D. (Georgia, 1967).

Assistant Residents: Lynn Allen Hughes, M.D. (Oklahoma, 1968); Kenneth A. Johnson, M.D. (Iowa, 1969); Randolph R. Smith, M.D. (Georgia, 1970); Willard Thompson, M.D. (Med. Coll. of Virginia, 1969); Frank R. Warder, M.D. (South Carolina, 1968).

DIVISION OF PLASTIC AND MAXILLOFACIAL SURGERY

Instructors and Chief Residents: Donald Serafin, M.D. (Duke, 1964); Joseph M. Still, M.D. (Georgia, 1964).

Assistant Residents: William Hyland, M.D. (Boston, 1966); Verne Lanier, M.D. (Vanderbilt, 1966); Henry W. Neale, M.D. (Med. Coll. of Virginia, 1964); Calvin Peters, M.D. (Louisiana State, 1964); Philip G. Prioleau, M.D. (South Carolina, 1967); C. Lynwood Puckett, M.D. (Bowman Gray, 1966).

DIVISION OF UROLOGIC SURGERY

Instructors and Chief Residents: Arthur E. Fetzer, M.D. (Cornell, 1967); John L. Weinerth, M.D. (Harvard, 1967).

Fellows: George P. Hemstreet, III, M.D. (Hahnemann, 1968); Richard D. Kane, M.D. (Northwestern, 1971); Charles M. Lindsey, M.D. (Tulane, 1968); Elston Seal, Jr., M.D. (Med. Coll. of Virginia, 1972); Jeff Wacksman, M.D. (Cincinnati, 1970).

Assistant Residents: Nicholas M. Bath, M.D. (Duke, 1967); George D. Case, M.D. (Northwestern, 1969); David L. Dalton, M.D. (Tennessee, 1969); H. Sykes DeHart, M.D. (Duke, 1967); Samuel P. Hawes, III, M.D. (Vanderbilt, 1967); Lloyd J. Peterson, M.D. (Northwestern, 1969); Peter S. Stevens, M.D. (Emory, 1967).



ROSTER OF STUDENTS

Class of 1977

Adams, Beverly Jean S. (Cincinnati), Durham, North Carolina
Adams, Susan Carol (Winthrop), Rock Hill, South Carolina
Arthur, Martha Frances (Brown), Reynoldsburg, Ohio
Auerbach, Paul Stuart (Duke), North Plainfield, New Jersey
Austin, Linda Smith (Duke), Westfield, N. J.
Bailey, Kathleen Marjorie (Duke), Washington, D. C.
Barton, Thomas Karl (Massachusetts Institute of Technology), St. Petersburg Beach, Florida
Berger, Jerry Jay (State University of New York at Buffalo), New York, New York
Bernstein, Barry Michael (Northwestern), Milwaukee, Wisconsin
Bishop, Linda Alice (Yale), So. Dennis, Massachusetts
Blacharsh, Jill June (Vassar), West Hempstead, New York
Bloomfield, Robert Lee (Dartmouth), Chapel Hill, North Carolina
Boeck, Marjorie Ann (Minnesota), Durham, North Carolina
Bower, Andrea (Occidental), Rolling Hills Estate, California
Brennan, John Thomas, Jr. (Duke), Youngstown, N. J.
Bressler, Robert Burgess (Vanderbilt), Durham, North Carolina
Bruce, James Frederick, Jr. (Auburn), Opelika, Alabama
Buckley, Edward G. (Duke), Durham, North Carolina
Cannon, Patricia Ann (Hofstra), New Castle, Delaware
Cassano, William Frank (Duke), Chappaqua, New York
Clark, Margaret Thom (Smith), Colorado Springs, Colorado
Cochi, Stephen Lee (Massachusetts Institute of Technology), Rochester, New York
Dackis, Charles Andrew (Duke), Short Hills, New Jersey
Drake, Miles Edward (Harvard), Vineland, New Jersey
Dunnigan, Ann Christine (California at San Diego), Downey, California
Duvic, Madeleine (Rice), New Orleans, Louisiana
Dykes, James Russell (Duke), Bartlesville, Oklahoma
Ely, Ralph Lawrence, III (Davidson), Durham, North Carolina
Fox, Gary Norman (Maryland), Bethesda, Maryland
Francis, Robert Dean (Duke), Durham, North Carolina
Gallemore, Gail Hurd (Emory), Durham, North Carolina
Garcia-Saul, Jose Antonio (Univ. of Puerto Rico), Santurce, Puerto Rico
Gavin, James Rapheal, III (Livingstone), Mobile, Alabama
Gehrett, Joseph Owen, Jr. (Duke), Deer Lodge, Montana
Gilbert, Paul Pressly. (North Carolina State), Statesville, North Carolina
Hagerty, Richard Curry (Johns Hopkins), Charleston, South Carolina
Hainline, Bryan Edward (Georgia Institute of Technology), Atlanta, Georgia
Hainsworth, Barbara Ellen (Stanford), Los Altos, California
Hardy, Henry James (Williams), Cleveland, Ohio
Harrington, Madeline Miller (Hawaii), Atlanta, Georgia
Harris, Larry Coleman (Yale), Fayetteville, North Carolina
Hasson, Newton Earl (Duke), Timonium, Maryland
Herman, Gail Ellen (Smith), White Plains, New York
Holt, Lawrence Byerly, Jr. (William & Mary), Winston-Salem, North Carolina
Honeycutt, Pamela Jane (Mississippi), Jackson, Tennessee
Honickman, Steven P. (State University of New York at Stony Brook), Brooklyn, New York
Hooper, Mildred Walker (Radcliffe), Ruxton, Maryland
Horton, James Marvin (Duke), New Orleans, Louisiana
Hughes, Claude LeBernian, Jr. (East Carolina), New Bern, North Carolina
Kennedy, John Daniel, Jr. (Duke), Richmond, Virginia
Klausner, Cecile Bassen (Yale), Little Neck, New York
Klausner, Richard Daniel (Yale), Yonkers, New York
Kull, Richard Kevin (Duke), Durham, North Carolina
Larrick, James William (Colorado), Englewood, Colorado
Leggett, Margaret Irwin (Duke), Alexandria, Virginia (withdrawn)
Leslie, John Bruce (Johns Hopkins), Albuquerque, New Mexico
Lewis, Richard Harlow (Guilford), Lake Worth, Florida
Ling, David (Princeton), Louisville, Kentucky
Lymberis, Marvin Edward (Duke), Charlotte, North Carolina
Mackey, William Charles (Amherst), New Canaan, Connecticut
Magill, Michael Kevin (Dartmouth), Scottsdale, Arizona
Mahony, Cheryl (Pitzer), Fullerton, California



Mattil, Christopher Lee (Duke), Bryan, Texas
 Mayer, Thom Alan (Hanover), Anderson, Indiana
 McGinnis, James William, Jr., (Stanford), Cary, North Carolina
 McKain, Carey Wilson (Clemson), Taylors, South Carolina
 Miller, Gary Michael (North Carolina), Jefferson, North Carolina
 Millsaps, David McIvers (Duke), Santa Ana, California
 Moeller, Garland Radford (Princeton), Bedford, Massachusetts
 Morawetz, Lida Joan (Massachusetts Institute of Technology), New York, New York
 Myers, John Lewis (Bowdoin), Salisbury Cove, Maine (withdrawn)
 Nichol, Walter Paul (Dartmouth), Durham, North Carolina
 Ozimek, Carl Dean (U.S. Military Academy), Westfield, New Jersey
 Pasternak, Lewis Reuven (Johns Hopkins), Hempstead, New York
 Paulson, Wendy Carol (Bethel), Camp Lejeune, North Carolina
 Pedley, Carolyn Frances (Duke), Charleston, West Virginia
 Pollack, Rhonda Beth (Brandeis), Brooklyn, New York
 Roberts, William Dotson (Allegheny), Glenshaw, Pennsylvania
 Roloson, Gary James (California at San Diego), San Gabriel, Calif.
 Rouault, Tracey Ann (Yale), Schenectady, New York
 Rutledge, John Hunt, II (Southwestern at Memphis), Humboldt, Tennessee
 Sadler, Jasper Evan, III (Princeton), Huntington, West Virginia
 Schatz, Richard Alan (State University of New York at Buffalo), Setauket, New York
 Schienman, Steven Jay (Amherst), Woodbourne, New York
 Sellers, Thomas Duncan, Jr. (Colorado), Dillon, Colorado
 Shoemaker, Ritchie C. (Duke), Carlisle, Pennsylvania
 Smith, Christopher Edmund (Princeton), Bemus Point, New York
 Smith, Peter Kent (Princeton), Swansea, Massachusetts
 Smolko, Milan John (Pennsylvania), Stroudsburg, Pennsylvania
 Snow, Joseph Robert (Southern Methodist), Abilene, Texas
 Stanley, Robert Boswell (North Carolina), High Point, North Carolina
 Stewart, Dannie L. (North Carolina), Cary, North Carolina
 Stinson, Olivia Diane (North Carolina), Charlotte, North Carolina
 Symmonds, Jeffrey Boone (Colorado), Rochester, Minnesota
 Terry, Linda Carole (Florida State), Miami Springs, Florida
 Thaler, Malcolm Stuart (Amherst), Poughkeepsie, New York
 Thomassen, Thom Scott (U.S. Military Academy), Tucson, Arizona
 Ticehurst, John Robert (Brown), Fair Haven, New Jersey
 Trantham, Joey Lee (Georgia Institute of Technology), Marble, North Carolina
 Trask, Neil Webster, III (Davidson), Burton, South Carolina
 Trofater, Kenneth Frank, Jr. (Duke), Bound Brook, New Jersey
 Unterman, Terry Gene (Princeton), Evanston, Illinois
 Waldrop, Charles Danny (North Carolina), Columbus, North Carolina
 Walker, Price, Jr. (California Institute of Technology), Columbus, Georgia
 Walls, Bertram Emanuel (North Carolina A & T State), Chadbourn, North Carolina
 White, Linda Gage (Duke), Durham, North Carolina
 Wilkinson, Sarah Frances (Wellesley), Chapel Hill, North Carolina
 Williams, John Mark (Duke), South Bend, Indiana
 Williams, Larry Wayne (North Carolina), Granite Quarry, North Carolina
 Williams, Roy Jerome (Harvard), St. Louis, Missouri
 Willis, Henry Stuart Kendall, III (United States Air Force Academy), Chapel Hill, North Carolina
 Yen, Tien-Sze Benedict (Stanford), Palo Alto, California
 Yoshinaga, Monica Ann (Holy Names College), Baltimore, Maryland
 Young, James Allen (Harvard), Topeka, Kansas

Class of 1976

Allen, Faith (Rochester), Berkeley Heights, New Jersey
 Arentzen, Carl Edward (Princeton), Stratford, New Jersey
 Austin, Robert Marshall (Lafayette), Westfield, New Jersey
 Ballard, Evan A. (Dartmouth), Monticello, Georgia
 Beauchamp, Charles O. (Stanford), Houston, Texas
 Beaumont, Ralph H. (Duke), Greensboro, North Carolina
 Becker, Robert L., Jr. (Miami), Columbus, Ohio
 Beekman, Robert H., III (Occidental), Carmichael, California
 Berger, Keith (Harvard), Norfolk, Virginia
 Bergin, Donald John (U.S. Military Academy), Harvey, Illinois
 Bilsker, Martin (Massachusetts Institute of Technology), Miami, Florida



Blaylock, Barbara Laine (Duke), Winston-Salem, North Carolina
Brown, Michael Alan (Tennessee), Concord, Tennessee
Bundy, Ralph L. (Florida Technical Institute), Daytona Beach, Florida
Cannon, David R. (Duke), Durham, North Carolina
Carlson, Desiree A. (North Carolina), St. Paul, Minnesota
Caudill, Lucy H. (Duke), Charleston, West Virginia
Cheesborough, John D. (Duke), Asheville, North Carolina
Clayton, Linda Ann (North Carolina Central), Timberlake, North Carolina
Coleman, Arnette (Livingstone), Norlina, North Carolina
Collins, David (Washington & Lee), Front Royal, Virginia
Cooke, James H., Jr. (Duke), New Bern, North Carolina
Cordingley, Gary Edward (Purdue), Crown Point, Indiana
Crain, Barbara J. (California at Irvine), Long Beach, California
Creagan, Susan M. (Radcliffe), Monroeville, Pennsylvania
Crigler, Norris Wolf, Jr. (North Carolina), Charlotte, North Carolina
Dae, Michael W. (North Carolina State), Raleigh, North Carolina
Davies, Michael E. (Duke), Bay Village, Ohio
Dixon, George R. (North Carolina), Durham, North Carolina
Dunn, Philip Herbert (Yale), Tampa, Florida
Edgar, John Ralph (Massachusetts Institute of Technology), Atlanta, Georgia
Eiden, Joseph John, Jr. (Duke), Wilmington, North Carolina
Eubank, Daniel F. (Swarthmore), Summerville, South Carolina
Fedor, John Michael (Pennsylvania State), Winburne, Pennsylvania
Fisher, Samuel Rankin (Davidson), Winston-Salem, North Carolina
Fitch, Robert Douglas (Duke), Fairmont, West Virginia
Forth, Richard Vernon (Duke), Roanoke, Virginia
Friedman, Gregg A. (Duke), Columbia, South Carolina
Galentine, Paul Guy (U.S. Naval Academy), Alexandria, Virginia
Geer, Michael Reynaud (Duke), Durham, North Carolina
Gellerstedt, Mary Ellen (Yale), Atlanta, Georgia
Gentry, Robert E. (Duke), Lynchburg, Virginia
Giesker, David William (Princeton), Watertown, Connecticut

Hanberry, Richard L., III (Emory), Macon, Georgia
 Herr, Douglas VanGeem (Williams), Summit, New Jersey
 Hinkle, Bonnie K. (Duke), Welcome, North Carolina
 Hull, Keith L., Jr. (Johns Hopkins), Battle Creek, Michigan
 Hunter, John D. (Wesleyan), Allentown, Pennsylvania
 Jacob, Andrew S. (Massachusetts), Malverne, New York
 Johnston, Michael Francis (Georgia), Athens, Georgia
 Joiner, Clinton Hubert (Georgia Institute of Technology), Decatur, Georgia
 Jones, John Wesley (Duke), Charlotte, North Carolina
 Jones, Roy B. (Duke), Durham, North Carolina
 Kalman, Leonard (Wesleyan), Hillside, New Jersey
 Keller, Ted Steven (Wake Forest), Charlotte, North Carolina
 Kilpatrick, Russell James (North Carolina), Asheboro, North Carolina
 Kincaid, Stuart B. (Ohio State), Hillsboro, Ohio
 King, George L. (Johns Hopkins), Richmond, Virginia
 Koon, Richard Ethen (North Carolina State), Asheville, North Carolina
 Korngut, Irwin Steven (Dartmouth), Valley Stream, New York
 Krauth, Lee E. (United States Air Force Academy), Canfield, Ohio
 Lamb, Robert Vaughn (Duke), Southern Pines, North Carolina
 Lambert, Paul Ray (Duke), South Charleston, West Virginia
 Lambeth, John David (Southern Methodist), El Paso, Texas
 Leider, Karen E. (Massachusetts Institute of Technology), New York, New York
 Lesesne, Joseph B. (Duke), Spartanburg, South Carolina
 Lies, Stephen Craig (Emory), Dothan, Alabama
 Lipscomb, Robert M. (North Carolina), Charlotte, North Carolina
 Livengood, Charles Harris, III (Davidson), Durham, North Carolina
 Luikart, Sharon Davis (West Virginia), South Charleston, West Virginia
 Manning, Stuart Hall (North Carolina), Durham, North Carolina
 Marquardt, John David (Notre Dame), Clearwater, Florida
 McCracken, J. Stuart (Davidson), Durham, North Carolina
 McKee, Heather C. (Kirkland), Glens Falls, New York
 Mickey, John V. (Duke), Cincinnati, Ohio



Miller, James York E. (Harvard), Guilford, Connecticut
 Mitchell, James M. (Harvard), Edina, Minnesota
 Moore, Reginald Graham, Jr. (U.S. Military Academy), Durham, North Carolina
 Morgan, Anthony Dean (Duke), Laurel, Maryland
 Murray, John Carroll (Williams), Reynoldsville, Pennsylvania
 Neal, John William (North Carolina) Hamlet, North Carolina
 Nicholson, Britain Walton (North Carolina), Chapel Hill, North Carolina
 Olshan, Arthur Robert (Brooklyn), Rockaway Park, New York
 Ose, Dennis Eugene (Purdue), Indianapolis, Indiana
 Papadopoulos, Demetrios A. (Dartmouth), Atlanta, Georgia
 Parsons, James Thomas (Duke), Oak Ridge, Tennessee
 Perler, Bruce Alan (Duke), New Bedford, Massachusetts
 Piech, Kenneth Stowell (Purdue), Wilmington, Delaware
 Podolsky, Susan Ann (Pennsylvania), Philadelphia, Pennsylvania
 Polisson, Richard Paul (Yale), Swampscott, Massachusetts
 Robertson, Dwight L. (Duke), DeKalb, Illinois
 Roden, William C. (U.S. Military Academy), Cookeville, Tennessee
 Savage, Robert M. (Kentucky), Maysville, Kentucky
 Schlossman, David Michael (Columbia), Kenmore, New York
 Schultz, Diana J. (Valparaiso), Curtiss, Wisconsin
 Scoggins, Bernard (Davidson), Dalton, Georgia
 Sharp, Gregory H. (California Institute of Technology), Squantum, Massachusetts
 Shaw, Robert A. (Duke), Decatur, Georgia
 Singler, Robert Charles (Oberlin), Cary, North Carolina
 Stein, Robert B. (Indiana), Kokomo, Indiana
 Stirling, Howard J. (Columbia), Laurelton, New York
 Swetenburg, Raymond Lee (Davidson), Gainesville, Georgia
 Tannenbaum, Sigmund I. (Duke), Greensboro, North Carolina
 Tate, Robert Marshall (North Carolina), Greensboro, North Carolina
 Tatum, Arthur Howard (Wisconsin), Harrington, New Jersey
 Treadwell, Edward Louis (North Carolina A & T State), Garland, North Carolina
 Unger, Stephen Wise (Columbia), Miami Beach, Florida
 Upchurch, Katherine S. (Sweet Briar), Birmingham, Alabama
 vanBenthuyzen, Karyl M. (Yale), White Plains, New York
 Vick, Giles Wesley, III. (Duke), Monroe, North Carolina
 Vincent, Michael Paul (Duke), Clifton, Virginia
 Webb, Mary Sharon (Virginia), Alexandria, Virginia
 Weinstein, Philip (Dartmouth), West Hartford, Connecticut
 Whitaker, Willie Roscoe (Notre Dame), Columbia, South Carolina
 Whitesides, Daniel B. (Erskine), Sumter, South Carolina
 Whitlow, Patrick L. (Virginia), Atlanta, Georgia
 Williams, Robert Dean, Jr., (Duke), Durham, North Carolina
 Williams, Robert Lee (Duke), Wilmington, North Carolina
 Williford, Margaret E. (North Carolina), Lillington, North Carolina
 Woods, Gerald M. (Princeton), Kansas City, Missouri
 Worlax, Frank (Duke), Hillsborough, North Carolina
 Zack, Brian Gary (Princeton), New York, New York
 Ziegler, Robert Eliot (Colorado), College Park, Georgia

Class of 1975

Abernethy, John Lloyd (Duke), Charlotte, North Carolina
 Agner, Roy Christopher (Davidson), Salisbury, North Carolina
 Allison, James Richard, III, (Davidson), Columbia, South Carolina
 Andrew, Clifford George (Columbia), Florissant, Missouri
 Andrew, Louise Briggs (Duke), Durham, North Carolina
 Area, Leandro Crescencio (William & Mary), Miami, Florida
 Arey, Jo Ann Holsouser (Duke), Rockwell, North Carolina
 Arnold, Luther Christian (Duke), Burlington, North Carolina
 Baker, Elizabeth Renwick (Duke), Newberry, South Carolina
 Ball, Robert Morris (Georgia Institute of Technology), Dallas, Texas
 Barnes, Larry (North Carolina), Robersonville, North Carolina
 Bardsley, George Peter (Princeton), Old Lyme, Connecticut
 Becker, Matthew Joseph (Massachusetts Institute of Technology), North Miami Beach, Florida
 Bolander, Franklyn Francis, Jr. (Armstrong State), Savannah, Georgia

Bonin, Andrew Anthony (Pomona), Encino, California
 Bonner, Ernest Lincoln, Jr. (Duke), Gaffney, South Carolina
 Borowitz, Michael Joseph (Massachusetts Institute of Technology), Bronx, New York
 Bousquet, Franklyn Philip, III (Dartmouth), Savannah, Georgia
 Boyd, James Francis (Citadel), Newberry, South Carolina
 Brady, Charles Eldon, Jr. (North Carolina), Robbins, North Carolina
 Brantley, Bert Alton, Jr. (Duke), Columbia, South Carolina
 Brown, Joan Sandy (Shaw), Brooklyn, New York
 Butler, Stephen Robert (North Carolina), Roseboro, North Carolina
 Campbell, William Keith (State University of New York at Buffalo), Williamsville, New York
 Carmichael, Ann Gayton (DePauw), Roanoke, Virginia
 Cappello, Roger William (Williams), Glens Falls, New York
 Cassell, Robert Holland (Harvard), Atlanta, Georgia
 Chambers, John Willis, Jr. (Princeton), Richmond, Virginia
 Chatterson, Howard Treat (Harvard), Denver, Colorado
 Clegg, Herbert William, II (Davidson), Cockeysville, Maryland
 Clements, Fiona Marshall (St. Bartholomew's Medical School), Durham, North Carolina
 Davis, Alan Dean (Emory), Knoxville, Tennessee
 Donohue, Hugh James, Jr. (U.S. Military Academy), Rockville, Centre, New York
 Dorminy, John Henry, III (Emory), Fitzgerald, Georgia
 Draffin, Richard Marion (Duke), Columbia, South Carolina
 Drake, Robert Eldon, Jr. (Princeton), Winter Park, Florida
 *Durham, David Allen (North Carolina), Charlotte, North Carolina
 Eisenbarth, George Stephen (Columbia), Brooklyn, New York
 English, Peter Calvin (Duke), Mountain Lakes, New Jersey
 Fields, Richard Alan (Hampton Institute), Greensboro, North Carolina
 Forciea, Mary Ann (Marquette), Colerain, Minnesota
 Fortune, John Bradley (Duke), Indianapolis, Indiana
 Fouts, Anthony Calhoun (Virginia), Atlanta, Georgia
 Fries, Louis Frederick, III (Johns Hopkins), Wayne, Pennsylvania
 Fromer, Carl (Columbia), St. Croix, Virgin Islands
 Garrett, William Elwood, Jr. (North Carolina), Roxboro, North Carolina
 Gnepp, Douglas Robbin (Drexel Institute of Technology), Philadelphia, Pennsylvania
 Gober, Henry Fred, Jr. (Duke), Atlanta, Georgia
 Goodkind, David Jay (State University of New York at Buffalo), Roslyn, New York
 Graham, Suzanne Carol (Cornell), Chapel Hill, North Carolina
 Gross, Wendy Elise (Hofstra), N. Bellmore, New York
 *Grulke, David Carl (Ohio State), Berea, Ohio
 Hansen, Dorothy Anne (Wellesley), Philadelphia, Pennsylvania
 Harvey, Robert Clinton (U.S. Military Academy), Pebble Beach, California
 Hawley, Philip Caldwell (Princeton), Columbus, Ohio
 Hess, David Stephen (Florida), Douglasville, Georgia
 Humphrey, John Edward, Jr. (Georgia Institute of Technology), Sparta, Georgia
 Jarvis, Stuart Craig (Vanderbilt), Louisville, Kentucky
 Jobin, Michael John (Harvard), Somerville, New Jersey
 Johnston, William Elliott (Duke), Jackson, Mississippi
 Josephs, Shelby Harold (Pennsylvania), Baltimore, Maryland
 Kahn, Robert Ira (Cornell), Newburgh, New York
 Kapsch, Donald Norman (Princeton), Boca Raton, Florida
 Kehne, Barbara Joanne (Mount Holyoke), Hagerstown, Maryland
 Kessler, Allen Reif, II (Davidson), Jeffersontown, Kentucky
 Khoury, Christopher Paul (Yale), Oklahoma City, Oklahoma
 Kleinerman, Eugenie Sue (Washington), Shaker Heights, Ohio
 Krause, Robert Allen (Pennsylvania State), Pittsburgh, Pennsylvania
 Lang, Laurence Alan (California at Los Angeles), North Hollywood, California
 Larson, Richard Martin (Cornell), Laurel Bay, South Carolina
 Lhotsky, Dora Maratka (Duke), Durham, North Carolina
 Lloyd, Stephen Carroll (Johns Hopkins), Baltimore, Maryland
 Lober, Clifford Warren (Columbia), Falls Church, Virginia
 Lotham, Eric William (Duke), Kirkwood, Missouri
 MacIntosh, Victor Henry (Duke), Chapel Hill, North Carolina
 Marlow, Michele (Emory), Chipley, Florida
 McCarley, Dean Latain (Northwestern), Sarasota, Florida

*Leave of absence.



McCarty, Gale Anne (Duke), Durham, North Carolina
 McLean, Susan Jenkins, (North Carolina), Durham, North Carolina
 Moore, Benjamin Edgar (Davidson), Columbia, South Carolina
 Moss, Jonathan (Harvard), Belmont, Massachusetts
 Muller, Thomas Walter (Massachusetts Institute of Technology), Richmond, Virginia
 Nagey, David Augustus (Purdue), Bloomfield Hills, Michigan
 *Newman, Walter Joseph (Duke), Clinton, North Carolina
 Novak, Robert William (Brown), Berea, Ohio
 Paulson, Jerome Avrom (Maryland), Baltimore, Maryland
 Peksa, Pamela Eileen (Maryland), Simpsonville, Maryland
 Pfister, William Charles (Duke), Monroe, North Carolina
 Phillips, Harry Rissler, III (Washington & Lee), Spartanburg, South Carolina
 Poston, William Mason, (North Carolina), Mooresville, North Carolina
 Powell, Robert Charles (Shimer), Largo, Florida
 Priour, Harlan Lary (Duke), Ingram, Texas
 Raugi, Gregory John (Brown), Atherton, California
 Reid, Barbara Sue (Rice), Shreveport, Louisiana
 Rhoads, Edward John (Duke), Durham, North Carolina
 Richardson, David Lee (North Carolina), Laurinburg, North Carolina
 Robinson, Charles Hall, Jr. (Princeton), Elizabeth City, North Carolina
 Rockson, Stanley Glenn (Duke), Miami Beach, Florida
 Sanfilippo, Alfred Paul (Pennsylvania), Malba, New York
 Scheinberg, Richard (Princeton), Miami Beach, Florida
 Schenk, Worthington George, III (Rochester), Kenmore, New York
 Schiff, Richard Ivan (George Washington), Wheaton, Maryland
 Scott, John Glenn (Duke), Tillar, Arkansas
 Singer, Francis Philip Graham (Duke), Ft. Lauderdale, Florida
 Singletary, William Vance, Jr. (Duke), Durham, North Carolina
 Sneiderman, Charles Alan (Maryland), Wheaton, Maryland
 Snyder, David Warren (Princeton), Metairie, Louisiana
 Stansbury, Stephen Williams (Johns Hopkins), Louisville, Kentucky

*Leave of absence.

Steele, John Carson Hay, Jr. (Duke), N. Augusta, South Carolina
Stoughton, Ned Stanley (California at Berkeley), Berkeley, California
Stubbs, Thomas Mangum (Princeton), Durham, North Carolina
Stulting, Robert Doyle, Jr. (Duke), Knoxville, Tennessee
Thistlethwaite, James Richard (Amherst), Washington, D. C.
Tift, Jerome Pound (Vanderbilt), Macon, Georgia
Todd, Robert Franklin, III (Duke), Granville, Ohio
Toher, Raymond Joseph, Jr. (Duke), Spartanburg, South Carolina
Waite, Robert Sears (Duke), Atlanta, Georgia
Walther, Philip John (Michigan State), Van Wert, Ohio
Westby, Steven Ray (Duke), Madison, Minnesota
Wiener, Stephen Robideaux (Yale), Portland, Oregon
Wilkerson, Stephen Young (King), Portsmouth, Virginia
Williams, Lewis Thomas (Rice), Toccoa, Georgia
Williams, Linda Rankin (North Carolina A & T State), Greensboro, North Carolina
Wojeski, William Victor (Massachusetts Institute of Technology), Erie, Pennsylvania
Zaino, Richard John (Holy Cross), Scotch Plains, New Jersey

Class of 1974

Ahmann, Gerald Black (Duke), St. Charles, Missouri
Alexander, Leon George, Jr. (Virginia), Gastonia, North Carolina
Baber, Collins Earl (North Carolina Central), Hempstead, New Jersey
Barham, James Eldred (South Carolina), Columbia, South Carolina
Bateman, Alan Lawrence (Columbia), New York, New York
Bermanzohn, Paul Carl (City College of New York), Bronx, New York
Berry, William Rosser (Davidson), Raleigh, North Carolina
Blumhagen, Dan Williams (Michigan State), Lansing, Michigan
Board, Robert Jeffrey (Duke), Front Royal, Virginia
Brantley, Ingrid Pierce (Smith), Hillsborough, North Carolina
Broders, Albert Compton, III (Texas), Temple, Texas
Brownlee, Michael Alan (Swarthmore), Rice Lake, Wisconsin
Burge, Joseph John (Temple), Shenandoah, Pennsylvania
Call, Newel Branson (Harvard), Portland, Oregon
Carnevale, Nicholas Theodore (Arizona), Tuscon, Arizona
Casagrande, Sandra Maas (Boston), Belmont, Massachusetts
Chernys, Ann Ester (Cornell), Poughkeepsie, New York
Cohen, Mitchell Lewis (Duke), Greensboro, North Carolina
Cohen-Cole, Steven Arnold (Harvard), Rockville Centre, New York
Cole, Thomas Carroll, Jr. (Texas), Huntsville, Texas
Curl, Walton Wright (U.S. Military Academy), Littleton, Colorado
Cutler, Daniel Joshua (Harvard), Bangor, Maine
David, Richard Joseph (Dartmouth), Jacksonville, Florida
Davis, Pamela Bowes (Smith), Huntington, New York
Denton, Jimmie Gwyn (North Carolina), Washington, North Carolina
Dorsey, James Stonewall (Duke), Cheraw, South Carolina
Downs, Robert Woodward, Jr. (Duke), Greenville, South Carolina
Drawbaugh, Edward John (Maryland), Hagerstown, Maryland
Drysdale, Daniel Brian (Princeton), St. Augustine, Florida
Faeder, Isabelle Richmond (Cornell), Durham, North Carolina
Findlay, William Allan (Massachusetts Institute of Technology), Charlotte, North Carolina
Fisher, William Sloan, III (Davidson), Winston-Salem, North Carolina
Foster, William Leicester (North Carolina), Roanoke, Virginia
Garson, Arthur, Jr. (Princeton), New York, New York
Georgiade, Gregory Stephen (North Carolina), Durham, North Carolina
Gilbert, Robert Woodrow, Jr. (Emory), Elko, Georgia
Gipson, Thomas G. (Johns Hopkins), Mechanicsburg, Pennsylvania
Goellner, William Edward (Michigan State), Lansing, Michigan
Goldner, Richard Douglas (Duke), Durham, North Carolina
Goodenberger, Daniel (Nebraska), Lincoln, Nebraska
Gosciniak, Stephen Andre (Princeton), Richardson, Texas
Grandis, Arnold Stephen (Washington & Lee), Richmond, Virginia
Grauerholz, John Edward (Duke), Durham, North Carolina
Holton, Walter Leggett (Wake Forest), Edenton, North Carolina
Hopkins, Richard Alan (Duke), Durham, North Carolina

Jason, Casey John (Northwestern), Glenview, Illinois
Jones, Lanning Derryl (Duke), New York, New York
Joyner, Ronald Wayne (North Carolina), Durham, North Carolina
Keel, James Franklin, III (Duke), Lake Forest, Illinois
Kessler, Dale Leroy (Dartmouth), Durham, North Carolina
Koman, Louis Andrew (Duke), Winchester, Virginia
Kopelman, Richard Ira (Harvard), Natick, Massachusetts
Leppert, Phyllis Carolyn (Depauw), Ridgewood, New Jersey
Lester, Robert Martin (Princeton), Great Neck, New York
Lillydahl, William Conrad (Princeton), Milwaukee, Wisconsin
Lister, Eric David (Haverford), Baltimore, Maryland
Maulitz, Russell Charles (Imperial), Birmingham, Alabama
Medlin, Douglas Anthony (St. Louis), Louisville, Kentucky
Miller, Michael David (Pennsylvania State), Cheverly, Maryland
Miller, Robert David (Davidson), Chapel Hill, North Carolina
Mold, James William (Michigan), Durham, North Carolina
Nadas, John Adalbert (Case Western Reserve), Lakewood, Ohio
Nadel, Andrew Thomas (Columbia), New York, New York
Norcross, William Arthur (Ursinus), Toms River, New Jersey
Paris, Steven Andrew (Harvard), Roslindale, Massachusetts
Pass, Harvey Ira (Johns Hopkins), Baltimore, Maryland
Perry, John Christopher (Dartmouth), Fayetteville, New York
Plumb, Vance John (Hampden Sydney), Richmond, Virginia
Poeschel, Bernard Bruce (Wisconsin State), Durand, Wisconsin
Porter, Wayne Randolph (Massachusetts Institute of Technology), Boston, Massachusetts
Powell, Norborne Berkeley (Stanford), Houston, Texas
Pyles, Jerald Dennis (Georgetown), Temple Hills, Maryland
Rainey, Thomas Gilman (Duke), Chevy Chase, Maryland
Rosenblitt, Daphne Allister (Pomona), Escondido, California
Rosenthal, John Thomas (Johns Hopkins), Norfolk, Virginia
Rothstein, Manfred Sheldon (Johns Hopkins), Owings Mills, Maryland
Rothstein, Thomas Lane (George Washington), Arlington, Virginia





Sanders, Lee (Swarthmore), Levittown, Pennsylvania
 Sateia, Michael John (Dartmouth), Jacksonville, Florida
 Schocken, Douglas David (Duke), McLean, Virginia
 Schwartz, Marcia Freed (Duke), Philadelphia, Pennsylvania
 Shipley, Michael Burgess (Oklahoma), Oklahoma City, Oklahoma
 Sides, Paul J. (Centre), Lancaster, Kentucky
 Simpson, John Bush (Texas), Houston, Texas
 Simrel, Kermit Oscar, Jr. (Howard), High Point, North Carolina
 Skarin, Robert Mark (Earlham), Arlington, Virginia
 Spector, Arthur George (Duke), Falls Church, Virginia
 Spray, Thomas Laton (Haverford), Oak Ridge, Tennessee
 Stead, William Wallace (Duke), Durham, North Carolina
 Strohmeier, Gerald Lynn (Kansas), Seneca, Kansas
 Tager, Mary Jeffrey (Duke), Merrick, New York
 Teutsch, Steven Michael (Harvard), Salt Lake City, Utah
 Thompson, Charlotte Ann (William & Mary), Marion, Virginia
 Troxler, David Hays (Davidson), Salisbury, North Carolina
 Walters, David Lee (Duke), Roanoke, Virginia
 Waugaman, Richard Merle (Princeton), Signal Mountain, Tennessee
 Weeks, Kenneth Durham, Jr. (Davidson), Rocky Mount, North Carolina
 Weiner, Richard David (Pennsylvania), Maitland, Florida
 Weisiger, Richard Atlee (Princeton), Potomac, Maryland
 Wesly, Robert Lawrence (Western Maryland), Severna Park, Maryland
 Wiley, Jerry William (Livingstone), East Spencer, North Carolina
 Williams, Eddie Meek, III (Duke), Columbia, South Carolina
 Williams, Robert Sanders (Princeton), Athens, Georgia
 Wolff, Bruce Giles (Davidson), Columbus, Georgia
 Yancey, Michael Victor (Harvard), Atlanta, Georgia
 Zellinger, Michael Jay (Duke), Canton, Ohio

Class of 1973 With Internship Appointments

- Africa, Bruce B. (Warren, Pennsylvania), Highland General Hospital, Oakland, California
Auerbach, Burt Jeffrey (North Plainfield, New Jersey), University of Illinois, Urbana, Illinois
Benbow, John Miller (Statesville, North Carolina), University of Colorado Affiliated Hospitals,
Denver, Colorado
Cahill, James David, Jr. (Charlotte, North Carolina), University of Colorado Affiliated Hospitals,
Denver, Colorado
Collins, Donald John (Minneapolis, Minnesota), Duke Medical Center, Durham, North Carolina
Conley, Martin James, Jr. (Fort Lauderdale, Florida), Duke Medical Center, Durham, North Carolina
D'Angelo, Lawrence James (Southington, Connecticut), Georgetown University Hospital, Wash-
ington, District of Columbia
Ducore, Jonathan Mark (Elberon, New Jersey), University of Cincinnati Affiliated Hospitals,
Cincinnati, Ohio
Durham, George Homer II (Salt Lake City, Utah), University of Utah Affiliated Hospitals, Salt
Lake City, Utah
Edwards, Keith Robert (Lake Forest, Illinois), Boston City Hospital, Boston, Massachusetts
Ellett, James Wiley (Wilmington, Delaware), Duke Medical Center, Durham, North Carolina
Flickinger, Edward Garner (Lima, Ohio), Case Western Reserve University Affiliated Hospitals,
Cleveland, Ohio
Frost, Richard Baylin (Glens Falls, New York), University of Kentucky Medical Center, Lexington,
Kentucky
Gordon, Richard Evans (Washington, District of Columbia), Vanderbilt University, Nashville,
Tennessee
Hallett, John William, Jr. (Wheeling, West Virginia), Wilford Hall United States Air Force Medical
Center, San Antonio, Texas
Hardaker, William Thomas, Jr. (Durham, North Carolina), Duke Medical Center, Durham, North
Carolina
Hartley, David Paul (Wheatland, Wyoming), University of North Carolina—John Umstead Hospital,
Butner, North Carolina
Hartwig, Geoffrey Bryan (Hattiesburg, Mississippi), Duke Medical Center, Durham, North Carolina
Hibler, Thomas Decatur, Jr. (Nashville, Tennessee), Los Angeles County Harbor General Hospital,
Los Angeles, California
High, William Lank, Jr. (Boone, North Carolina), Duke Medical Center, Durham, North Carolina
Kahler, Stephen Gregory (Los Angeles, California), San Diego County University Affiliated Hos-
pital, San Diego, California
Karp, Daniel David (Mattapan, Massachusetts), Mary Hitchcock Memorial Hospital, Hanover, New
Hampshire
Kidd, John Graydon, Jr. (Bronxville, New York), University of Minnesota Affiliated Hospitals,
Minneapolis, Minnesota
Kline, Lanning Bernard (Edmonton, Alberta, Canada), Duke Medical Center, Durham, North
Carolina
Lawrason, Peter Douglas (Dallas, Texas), Parkland Memorial Hospital, Dallas, Texas
Leonard, Stephen D. (Kew Gardens, New York), New York Hospital, New York, New York
Limbird, Thomas James (Amherst, Ohio), Duke Medical Center, Durham, North Carolina
Lowell, Seth Hawksworth, (Bloomington, Indiana), Duke Medical Center, Durham, North Carolina
Maier, Ronald Vett (Shadyside, Ohio), Parkland Memorial Hospital, Dallas, Texas
Marion, Jeremiah Richard, III (Winston-Salem, North Carolina), University of Miami Affiliated
Hospitals, Miami, Florida
Martin, Scott Addington (Rock Hill, South Carolina), Barnes Hospital, St. Louis, Missouri
Mason, David Hout, Jr. (Martinsburg, West Virginia), Duke Medical Center, Durham, North Carolina
McConaughy, Robert Schnoor (Redwood City, California), Duke Medical Center, Durham, North
Carolina
McDonald, John Alexander (Lakeland, Florida), Peter Bent Brigham, Boston, Massachusetts
McLean, George Wallace (Clinton, North Carolina), North Carolina Memorial Hospital, Chapel Hill,
North Carolina
McNeer, James Frederick (Huntington, West Virginia), Duke Medical Center, Durham, North
Carolina
Miller, David Edward (Hillsborough, North Carolina), Duke Medical Center, Durham, North
Carolina
Miller, Donald Max (Panama City, Florida), Peter Bent Brigham, Boston, Massachusetts
Miller, Joseph Matthew, Jr. (Timonium, Maryland), Duke Medical Center, Durham, North Carolina
Nathan, Michael Ronald (Silver Spring, Maryland), Childrens Medical Center, Dallas, Texas
Newman, Glenn Edwin (Clinton, North Carolina), Duke Medical Center, Durham, North Carolina
Norris, David Albert (Baltimore, Maryland), University Hospital, Columbus, Ohio

Ostdahl, Roger Harold (Wilmington, Delaware), Duke Medical Center, Durham, North Carolina
 Pilot, Mitchell Charles (Hammond, Indiana), Presbyterian-University Hospital, Pittsburgh, Pennsylvania
 Pizzo, Salvatore Vincent (Philadelphia, Pennsylvania), Duke Medical Center, Durham, North Carolina
 Quinn, Dianne McDonald (Dickerson, Maryland), Case Western Reserve University Affiliated Hospitals, Cleveland, Ohio
 Quinn, Graham Earl (Reston, Virginia), Cleveland Metropolitan Hospital, Cleveland, Ohio
 Raizes, Gary Scott (Mason City, Iowa), Duke Medical Center, Durham, North Carolina
 Rendall, John Lloyd, III (Greenville, South Carolina), Duke Medical Center, Durham, North Carolina
 Robinson, Stuart Fleetwood (Los Angeles, California), University of Arizona Affiliated Hospitals, Tucson, Arizona
 Rosenblitt, Donald L. (Flushing, New York), Duke Medical Center, Durham, North Carolina
 Samuel, Edward T. (Bronx, New York), Duke Medical Center, Durham, North Carolina
 Sarn, James Edward (Toms River, New Jersey), North Carolina Memorial Hospital, Chapel Hill, North Carolina
 Scherer, Charles King (Delray Beach, Florida), Camden New Jersey-Rutgers Affiliated Hospitals, Camden, New Jersey
 Schroeder, Terry Milton (Charlotte, North Carolina), University of Oklahoma Veterans Administration Hospital, Norman, Oklahoma
 Schwartz, Jared Naphtali (Youngstown, Ohio), Duke Medical Center, Durham, North Carolina
 Schwartz, Martin Lerner (Philadelphia, Pennsylvania), North Carolina Memorial Hospital, Chapel Hill, North Carolina
 Shasby, Douglas Michael (Youngstown, Ohio), University of Washington Affiliated Hospitals, Seattle, Washington
 Shaw, Dale Russell (Stewartstown, Pennsylvania), Duke Medical Center, Durham, North Carolina
 Simon, Richard Henry (Huntington Woods, Michigan), University of California, San Francisco, California
 Slade, Clement Lawrence (Jacksonville, Florida), Duke Medical Center, Durham, North Carolina
 Solovieff, Gregory Vladimir (Amityville, New York), Duke Medical Center, Durham, North Carolina
 Spaulding, Jean Gaillard (Detroit, Michigan), Duke Medical Center, Durham, North Carolina
 Strittmatter, Warren James (Plainview, New York), Grady Memorial Hospital, Atlanta, Georgia
 Sung, Chung-Shin (New York, New York), Baylor College of Medicine Affiliated Hospitals, Houston, Texas
 Talmadge, John M., Jr. (Big Spring, Texas), University of Wisconsin, Madison, Wisconsin
 Taylor, Lloyd McCully, Jr. (Great Falls, Montana), University of California, San Francisco, California
 Thomas, Cornelius Bullard, Jr. (Atlanta, Georgia), New York Memorial Hospital, New York, New York
 Williams, William Harrison, III (Rock Hill, South Carolina), University of Washington Affiliated Hospitals, Seattle, Washington
 Wilson, Joanne Antoinette Peebles (Raleigh, North Carolina), Peter Bent Brigham, Boston, Massachusetts
 Zwelling, Leonard A. (North Bellmore, New York), Duke Medical Center, Durham, North Carolina



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Map of the Medical Center

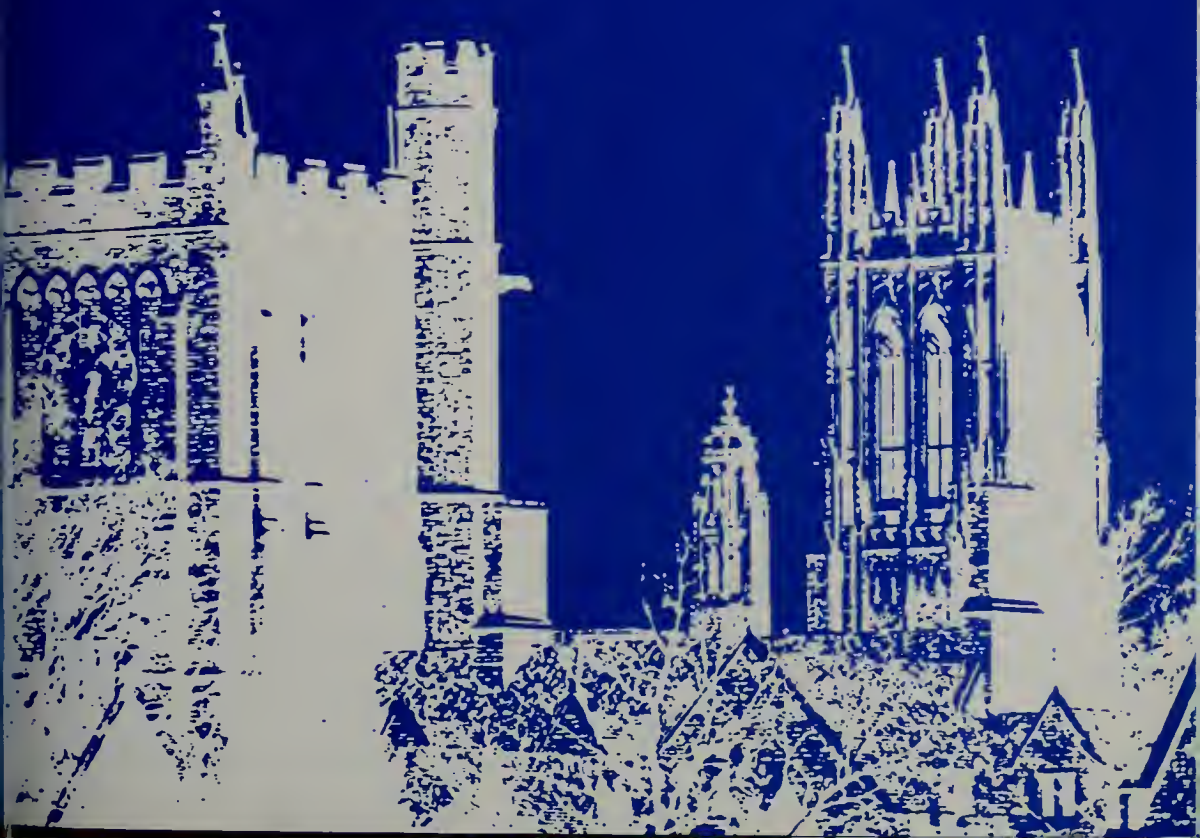


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| 1. Gerontology | 17. Research Park Bldg. No. 1 |
| 2. M & I No. 3 | 18. Research Park Bldg. No. 2 |
| 3. Clinical Research No. 1 | 19. Research Park Bldg. No. 3 |
| 4. Main Entrance Hospital | 20. Research Park Bldg. No. 4 |
| 5. Clinical Research No. 2 | 22. 220 Anderson St. |
| 6. Baker House | 23. Child Guidance Clinic |
| 7. School of Medicine (Davison Building) | 24. Vivarium |
| 8. Duke Hospital | 25. 2015 Erwin Road |
| 9. Bell Bldg. | 26. 2013 |
| 10. Hanes Annex | 27. Cowitan Bldg. |
| 11. Hanes House | 28. M. C. Personnel Bldg. |
| 12. Graduate Center | 29. Volatile Storage |
| 13. Medical Sciences Bldg. No. 1 | 33. 2214 Erwin Road |
| 14. Training Center Bldg. No. 1 | 34. 2212 Erwin Road |
| 15. Marshall Pickens Rehab. Cnt. | 44. Maint. Wzse. & Garage |
| 16. Training Center Bldg. No. 2 | 48. Medical Research Laboratories (Old Laundry) |



Bulletin of

DUKE UNIVERSITY



"Look at the aerial views and maps of the Duke campus. Yes, there are beautiful quadrangles to give us a sense of identity and belonging, sunny gardens to play in, forests to escape to, libraries and labs to feed our curiosities. But what don't you see? Mr. Price is right. You don't see any air pollution here. Neither do you see any other signs that there are problems—serious problems—facing our society. Cloisters and forests can be dangerous if they are allowed to become an incubator."

"Duke is an excellent place to come to know yourself and to learn to live with yourself. May I suggest, however, that if you decide on Duke, you make the constant effort not to let yourself become an intellectual self-reflecting hermit. Don't interpret the wall which runs around the campus as something which separates you and protects you from the lives and events beyond it."



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**Information
for
Prospective
Students**

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Why Think of College at All?

Why Duke?

by Reynolds Price

Reynolds Price was born and educated in North Carolina. After graduating from Duke University in 1955, he studied as a Rhodes Scholar in Merton College, Oxford University, "having finally seen that my one possible way of knowing, my only way of earning what some had freely given (confidence, fidelity) lay through the writing of prose fiction."

In 1958, he returned to Duke to teach and write, and several years later his first novel, *A Long and Happy Life*, won the William Faulkner Prize for a notable first work.

As professor of English and writer-in-residence, Mr. Price teaches courses in Milton and creative writing. His subsequent novels, short stories, and essays have won national acclaim and represent his effort to "transmute the lethal disorder of experience into well-formed but honest and useful public objects—mirrors, microscopes, telescopes but also shields."

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Why go on to college at all? Presumably, you're seventeen or eighteen years old. That means you have probably lived one-fourth of your life by now and are no longer pleading "Youth!" as an excuse for your errors or thoughtlessness. (You know who I mean—"I'm only eighteen; how was I supposed to know?") The answer is "Through your eyes and head; you've had twenty-five percent of your life to learn in.") So by now, you'll have asked yourself that question in many forms—why go to college?

The simplest answer—now, in America—is "Why not? My friends are going. It's the next thing to do. My parents want it. Future employers demand it. It's a temporary detour from Army, the Hard World, Jobs, Marriage (though I've heard college doubles as a marriage-broker). What else would I do?"—For one thing, you might do what most of the human race has done and still does long before age eighteen—leave home and begin your free life, for which you must work.

But of course there are far more serious answers. "I don't know enough yet—about the world, myself, others, least of all God—to want to begin my free life just now. If I tried, I'd have slim hopes of being free. I'd be bound and trapped by all I didn't know and, worst of all, by what I didn't know I didn't know. These four years of college are the time my society—like it or not, it's stronger than me and has the power to paralyze me in misery—has agreed to allow me for final preparations."

—Preparations for what? That's the next question and it goes down deeply.—For this "free life" I've mentioned, in the "real world"? You can't prophesy the life you're going to have, the world you'll meet; so how can you prepare for a succession of mysteries?—You have to guess at what those mysteries will be; and unless you're psychic, you can only begin to guess at the future by examining and understanding the past—your own, your race's, the past of the universe. And you have to guess at who will accompany you through your life—your parents partway, your wife or husband, children, friends, colleagues, your unavoidable enemies. The only prior certainties are these—that you'll *have* your life (some sort of life) till the moment you die

“I don't know enough yet—about the world, myself, others, least of all God—to want to begin my free life just now. . . .”

and that you yourself will be your one permanent inescapable companion through every moment until the last.

So I would suggest that the simplest, truest answer to “Why go to college?” is implied in the need to meet and deal with those two certainties. You go to college to continue your education—for the last years of your life which are likely to be free of heavy social burdens and therefore available to you as time in which to concentrate. You'll say I'm talking circles—what is “education”?

You know its etymology, from Latin—*e-ducere*, to lead out or draw out. But draw what out of what?—to draw yourself out of your physical and emotional childhood. To draw your own innate and acquired qualities of character and skill out of their confining fat of natural ignorance, laziness, self-destruction. To draw out of yourself, teachers, friends, and books the strengths you will need to live your life.

“Why bother?” you might say—“Most human beings have lived their lives with the barest minimum of formal education; most in fact with none at all.”

I'd say, “Right, and most lives have been miserable. You're going to have your life—unless you choose to stop it—so you'd better discover as soon as possible *how* to have it, what matters in it.” Lord Salisbury, Victoria's prime minister, once said when asked if he didn't think it mattered greatly for someone to do thus and so—“Nothing matters *very* much and few things matter at all.” The remark may shock you, as it still does me every time I hear it; but it says nothing new. It seems at first to share the weariness of Marcus Aurelius, the easy disillusionment of *Ecclesiastes*, the *Rubaiyat* and a billion adolescent diaries—Vanity of vanities, all is vanity. But that's not what Salisbury said (though he might, having presided for years over the largest empire in the history of the world)—not “All is vanity” or “Nothing matters” but “Nothing matters *very* much and few things matter at all.”

What few things? I'd suggest that another bout of serious education is your last chance of finding out some of those things at least (and the ways

to pursue them or live in their presence or absence if need be) before having to discover them all by the primeval and appallingly wasteful method of surprise and experience—life-between-the-eyes, with no fair warning and no advance knowledge of preventives or cures.

One of the things which will matter greatly, in your life and the lives of those close to you, is the work you choose to do. There's a lot of sneering and wincing lately at what's call the Puritan or Protestant Work Ethic; the ethic which, we're told, "made America great"—"Work for the night is coming . . . The Devil finds work for idle hands . . . A man's work is his truest worship." In short, many young people now deride an ethic which has come to see virtue in *busy-ness*, whatever the nature or aim of the business, war or peace, good or bad. And no man of good sense would try to deny that the old Judeo-Christian ethic has degenerated on many sides into the cynical, near-hysterical pursuit of money and power-for-the-sake-of-power. But to recognize decay in a concept is not to demand its abandonment, rather its repair—provided that the decay is not inherent in the concept itself, in some innate falsity or in its inappropriateness to present conditions. *Work* in the sense of daily effort at a job—work as labor—may be rapidly doomed for increasing numbers of men by automation, prosperity, governmental support. The fact remains however that we have our lives—say seventy years—and we have to get through them, some 25,690 days at twenty-four hours each, two-thirds of them conscious. And until medicine has developed far more sophisticated tranquilizers or methods of genetic manipulation or mind-control, we're going to have to find our own ways to pass, to endure, that time and the disciplines and techniques for passing it, if not usefully and happily at least harmlessly.

Until that day of universal leisure and the understanding of the uses of leisure, I'd suggest that your work can be your most reliable life-companion, your safest hope of freeing yourself.—Freeing yourself from what? First, from physical want—hunger, cold, disease. Then from other human beings, especially those you love. This is not to claim that you'd wish to abandon

"I mean formal education, conducted within an academic community, established however humanly and therefore imperfectly, maddeningly. . . ."

the duties of love toward your family and friends; it is to claim that only through your own early discovery of, cultivation of, some absorbing work—laying roads, exploring space, writing novels—will you have much chance to free yourself, not from love but from the crippling emotional dependence upon other human beings which poisons anyone who has nothing in his life upon which he can rely which promises to be more permanent than other people. A craft, a skill can—given good health—last you all your life. Very few friends, wives, sons, daughters can prove as enduring however much they wish to. Then last, work can free you from yourself; for your *self* will remain true longest of all. All your weaknesses will court you to your grave; and only a daily commitment to some work which will demand from you full exercise of your strongest self can free you from them.

Then I'd suggest that a full definition of *education*—for now at least—might go like this: Education is the process by which a man or woman discovers, as early as possible in his brief life, the nature and duties of the work which he desires and needs and is fitted to do and the means of doing it.

Am I speaking of *formal* education?—the sixteen to nineteen years of school and college you're likely to experience?—or, more broadly, of a private search and process conducted on your own? I mean *formal* education, conducted within an academic community, established however humanly and therefore imperfectly, maddeningly. Why so limiting?—Because not one man in fifty thousand has the resources of curiosity, concentration, self-control and stamina to lead himself, unassisted and unregulated, through the disciplines of even a minimal education.

If I assume that you've accompanied me this far, then I can hope that you won't think I'm producing—with a sly *Ah-ha!*—a rabbit from my hat when I say that your next question might be, "Why think of Duke?" Presumably you've already asked the question or you wouldn't be reading this pamphlet.

Leaving aside personal loyalties (that I was an undergraduate at Duke, that I returned to Duke to teach and have found it a good place for writing

fiction), my first and also final answer would be—because Duke is almost certainly as good a university as you are a man or woman. By which I mean that, provided any special interest of yours is dealt with at Duke, its major resources will match your needs and abilities and will test your character and stamina, your determination to do serious work, to have a free and serious life.

—Not *every* resource now—apart from equipment, Duke consists of human beings (a loose collection of ten thousand students, faculty, administrators, staff); and you would be faced often with the fact that such an institution is subject at every turn to failures in the competence and character of each member. But where will you not be faced with that fact, that particular frustration?—in a smaller college? A smaller college consists of fewer people—that much is sure, if that's a comfort; most universities consist of tens of thousands more—but a smaller college also contains fewer of the resources in which Duke is well-stocked.

I'd suggest that the major resources of Duke—and your heaviest reasons for considering it—are these (and in this debatable order):

- a library whose two million books and four million manuscripts place it among the first eighteen university libraries in America.
- a curriculum providing great fluidity of individual speed, intensity and independence within the bounds of responsible good sense.
- a total faculty of more than one thousand, some five hundred of whom work with undergraduate students (a faculty-student ratio then of one to ten), a number of whom are distinguished scholars and some of whom are well-known on campus (ask any student) for the excellence of their classroom efforts and their concern with serious student interests.
- an undergraduate student body of about five thousand which contains an unusually high and growing proportion of excellently informed men and women engaged in their own work.

“—then, the place. Not so much the famous neo-Gothic and Georgian quads as the huge green setting. The campus is set in some eight thousand acres of thick pine forest, granite bluffs, creeks, rivers.”

—then, the place. Not so much the famous neo-Gothic and Georgian quads as the huge green setting. The campus is set in some eight thousand acres of thick pine forest, granite bluffs, creeks, rivers. Walk twenty minutes—or drive for five—and you’re deep in woods. Clear air, clean light, silence, animals, arrowheads. Unprettified wilderness, available to you. If that doesn’t seem a “major resource” for your education, you’d probably be happier in an urban nexus.

There are many other assets—and liabilities—but my suggestion after more than fifteen years of exposure to the place, man and boy, is that if you are an American of undergraduate age who seriously wants to continue an education (as broadly defined above), who finds your special subject offered at Duke and is prepared to work within the general frame of a liberal curriculum at a private institution (which would imply that you have few delusions about the paradisaical nature of institutions or the ease of changing them), then you won’t find ten more possible places—more resourceful and better located for work. Make it five. Or eight—that’s only a game. The real question now, I’d think, is about you.



The University

Authentic freedom is freedom for. Not freedom from. It is the power to do and be at one ought to be, and this comes only way of self-imposed discipline of the most stringent kind."

—Waldo Beach

The "eight thousand acres of thick pine forest, granite bluffs, creeks, rivers" which provide the setting for Reynolds Price's essay rest in Durham, North Carolina, a growing city of almost 100,000 residents located approximately 250 miles south of Washington, D. C.

Gothic quadrangles on the University's West Campus are bounded on the one side by the Sarah P. Duke Gardens and on the other by a complex of modern laboratory facilities. University buildings and homes line the mile-long private drive leading to the East Campus, which is Georgian in its architecture and the site of early Trinity College. When James B. Duke granted his Indenture of Trust transforming college to university in 1924, coordinate liberal arts colleges for men and women were established on the West and East Campuses, and provision was made for programs in engineering and nursing. In September 1972, almost fifty years later, the two liberal arts colleges merged, and three divisions now comprise the undergraduate student body—Trinity College of Arts and Sciences, the School of Engineering, and the School of Nursing. Frequent, free bus transportation brings together the dormitories, libraries, dining facilities, and classroom buildings on both campuses.

University resources bring direct and indirect benefits to campus and community alike. The Graduate School, the professional schools of Law, Medicine, Divinity, Forestry, and Business Administration, and an internationally known medical center have an impact that is felt far beyond the limits of the Duke campus.

- Primary among Duke's assets is one of the finest library collections in the nation. Two million volumes and four million manuscripts in open stack collections on both campuses serve both undergraduate and graduate students. There are spacious and comfortable study areas with ready access to volumes reserved



by professors for undergraduate courses, and a special browsing library expected to contain 50,000 volumes of general and contemporary interest. A handsomely furnished Rare Book Room is the University's repository for its valuable collection of more than 30,000 rare books and manuscripts, including nearly all printed first editions of Frost, Byron, Whitman, and George Eliot. Through a reciprocal agreement, the libraries of the University of North Carolina, North Carolina Central University, and North Carolina State University are also open to Duke students.

- The modern Paul M. Gross Chemical Laboratory, perhaps the best equipped of its kind, further illustrates the University's efforts to enhance faculty and student research. A Regional Nuclear Structure Laboratory is housed on the Duke campus and serves the major universities in the area. The hyperbaric unit at the Duke University Medical Center is widely recognized for its use in the application of atmospheric pressure in experiments and delicate surgical procedures. A phytotron, one of two in the Southeast, allows duplication of environmental conditions anywhere in the world.

- Duke's long-term interest and involvement in marine science is manifest in its research facility at Beaufort, North Carolina, the home of the University's fully equipped, 118-foot RV

Eastward, the first ship in the United States designed specifically for research in biological oceanography. An interdisciplinary spring semester program at Beaufort is available to undergraduates.

- The Institute for Policy Sciences and Public Affairs brings the experience of the University community to bear on the analysis of both existing public policies and the institutions which administer them. It serves as a framework in which students and faculty from many disciplines work together in problem-oriented research and teaching. An undergraduate major in Public Policy Studies is described in the section of this bulletin entitled Areas of Study.

- Organized research is not limited to the laboratory. The Center for the Study of Aging and Human Development, the Rule of Law Research Center, and the Center for Commonwealth Studies are all active in research, publishing, and graduate education.

Whatever the discipline, undergraduates reaching advanced levels of study enjoy faculty support and assistance in pursuing research involving the use of the most sophisticated facilities, thought by many to be solely within the realm of the graduate student.

The Research Triangle, an area delineated by Durham, Raleigh, and Chapel Hill, is also the location of a unique foundation and insti-



tute which draws upon the resources of private enterprise and of the three major universities in the area. Work in the Research Triangle Park over the past ten years has embraced virtually all the technical and social disciplines, ranging from the establishment of a university and government consortium on air pollution control to the Triangle Universities Computation Center.

- The art museum on the East Campus houses the University's permanent collections as well as those on loan from individuals and museums around the world.

- Finally, the serenity and beauty of the Sarah P. Duke Gardens, spanning fifteen acres in the heart of the campus, provide year-round pleasure to visitors and members of the Duke community, while serving the Botany Department as laboratories illustrating the types of plants indigenous to the area. An open, grassy expanse in the gardens is often a spot for open-air concerts, as well as for informal gatherings.

At the most fundamental level, however, it has always been the men and women—faculty and students—who have provided the University's greatest wealth. From its earliest beginnings as Brown's Schoolhouse in 1838 to the institution as we know it today, Duke University has attracted men and women of imagination, courage, and intellectual achievement.

"Duke may have its roots in the old Trinity College, but it's still surprisingly young as a University. It's hard to believe that a group of individuals could conceive a University, set out to build it, and then witness its coming of age."





The Classroom and Beyond

*Whether the educated person tears or
strengthens the fabric of community de-
pends not on the extent of his information,
but on the sensitivity of his conscience, the
intent of his will."*

—Waldo Beach

The Academic Setting

The curriculum at Duke provides diversity within the structure of intellectual discipline. A student in the liberal arts may major in a single department or concentrate his work in several related departments. As an alternative, he may seek acceptance into Program II and pursue an entire study plan of his own devising. House courses, independent study, internships, and study abroad expand for all students the possibilities of the academic experience. Specific requirements are few, and there is no set formula which each Duke student must follow; he plans his own course of study, in consultation with his adviser, according to the general guidelines established by the University.

Although Trinity College of Arts and Sciences and the Schools of Engineering and Nursing exist for distinct educational purposes, the importance of the liberal arts is acknowledged and encouraged by the professional schools, and liberal arts students are able to supplement their work with elective courses in Engineering and Nursing. Students interested in one division would be well-advised to explore the opportunities in all three.

Advisers play an important role in the eventual success of a student's plan of study. A number of faculty members agree to serve each year not only as academic advisers for freshmen and departmental advisers for upper-classmen, but also as faculty associates involved informally with the academic and non-academic life of the various living groups. Students may also turn to departmental directors of undergraduate studies, supervisors of freshman instruction, and the academic deans of the colleges.

Study abroad, as part of an academic program leading to a college degree, must be a serious intellectual experience comparable in substance and quality to more traditional aspects

of college work. It is undertaken either through Duke-sponsored programs, through selected programs sponsored by other American colleges or universities, or through arrangements made by individual students directly with foreign universities. An adviser on study abroad provides current information on plans for Duke students and assists individuals or groups in planning new programs.

Rather than sponsoring an on-going structured program of foreign studies for undergraduates, Duke emphasizes the flexibility necessary to meet the interests of small groups of students and faculty when the need arises. As an example, a group of students interested in music initiated a proposal for a semester of study in Vienna in the spring of 1973. An archaeological dig in Israel has provided the substance for a Biblical studies course in archaeological investigation. Students of English literature may apply to participate in a year-long exchange program with the University of Warwick in England. Other groups of students and faculty have studied in Spain, France, Italy, and Germany. In all these programs the students enroll at Duke and pay the appropriate summer term or semester tuition.

Professional school preparation does not require students to forsake other academic interests. Undergraduates planning to enter medical school, for instance, are not "premed"





majors. Instead, a premedical adviser assists them in devising course schedules which accommodate not only the traditional courses recommended by medical schools but their own major interests as well.

Students who have been accepted to Duke's Schools of Forestry, Law, or Medicine following their junior year may petition to earn the bachelor's degree in combination with the Master of Forestry, the Juris Doctor, or the Doctor of Medicine degrees. Such plans depend on the student's admission to the desired professional school, his ability to complete certain liberal arts requirements within the first three years, and his performance in the professional school.

Advanced Placement may be arranged on the basis of the Advanced Placement Examinations and Achievement Tests of the College Entrance Examination Board. Only the Advanced Placement Examinations may lead to credit toward graduation for the course or courses omitted. In most cases, a score of 4 or 5 on an Advanced Placement Examination will earn degree credit, and a score of 3 will merit conditional credit. Acceptance of a score, however, is ultimately at the discretion of the department involved.

A required one-semester course in English composition may be waived for students who attain a score of 700 on the College Board English Composition Achievement Test.



TRINITY COLLEGE OF ARTS AND SCIENCES

Trinity College of Arts and Sciences, the largest of the undergraduate divisions, serves approximately 4,500 undergraduate men and women. Program I, the curricular plan chosen by most students, establishes a framework of study which includes work in the natural sciences and mathematics, the social sciences, and the humanities. Students pursue the requirements for a major in one of these areas, undertake advanced study to a moderate degree in a second division, and elect at least two courses within the remaining division.

Such interdisciplinary programs as public policy studies, comparative literature, and comparative area studies in Africa, Asia, and Latin America provide an alternative for some undergraduates to the departmental major. Others seek departmental approval for individually designed programs in two or more departments. Experience in seminars and tutorials, and in class-connected discussion groups and preceptorials, is guaranteed all students in the freshman and sophomore years. Advanced seminars and independent study are aspects of the work of the junior and senior years. It is the University's intent that no student pass

idly through the University on the back row, an anonymous and shady figure appearing only in a grade book.

Program II exists for the student whose interests and talents are so highly refined that they cannot be satisfied even by the flexibility offered under Program I. With the counsel and approval of a single department and a University Program II committee, the student has the opportunity to formulate with his adviser a plan of work adapted to his own special needs. He and his adviser assess his background and ambitions and together evaluate the resources in the University and outside it as a means of satisfying those ambitions. Once he is accepted into the program, the student is released from most of the academic requirements in the standard curriculum.

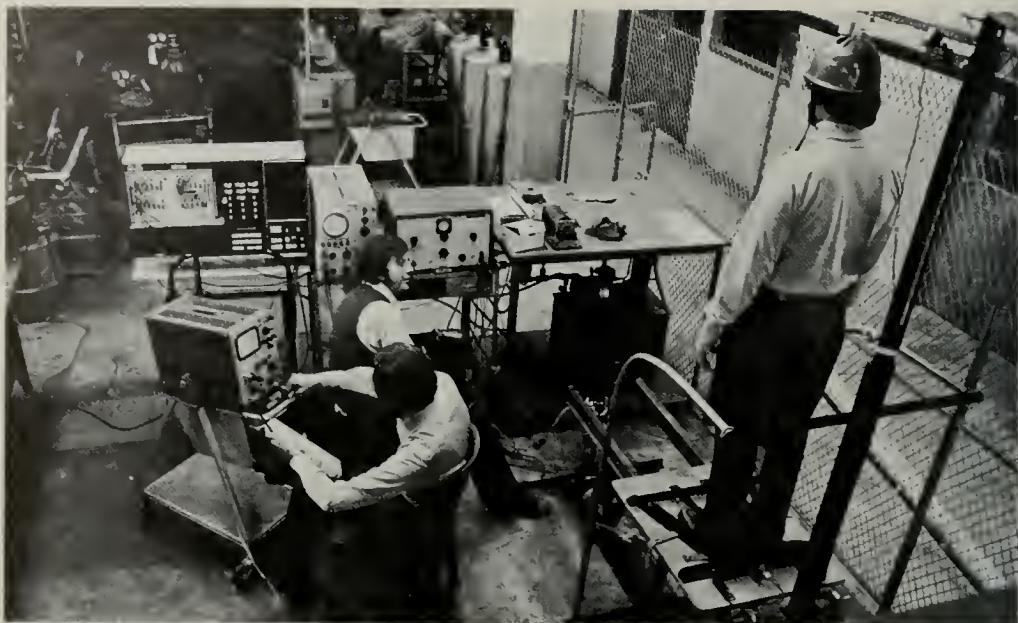
Fields of study in Program II are endless. Topics have included such areas as Appalachian Cultural Studies, Twentieth Century Musical Composition and Conducting, Topics in Plant Physiology, and the Political Implications of Contemporary Christian Thought. Ordinarily, a student designs his plan of work after at least one semester at Duke. However, applicants to the University may present a preliminary proposal to the Admissions Office for tentative review and comment by the Program II committee.



"You can expect some academic pressure here, and in some disciplines, a great deal of it. You can become a grade-grubber, or, by dint of will and discipline, you can become both a person and a producer. Clearly, we hope to see the latter."

"There's too much going on around here for you to confine your horizons to an undergraduate course catalog. Even the most distant researcher can be a valuable resource—especially if you let him know you're interested in his work."



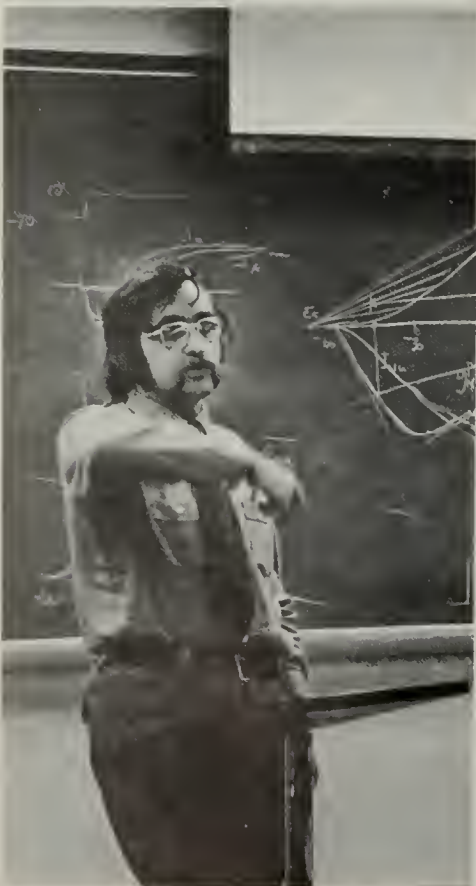


THE SCHOOL OF ENGINEERING

The School of Engineering defines engineering broadly as the application of technology to satisfy man's needs. The men and women who will be professional engineers in the latter part of the twentieth century must be capable of assessing those needs and developing new technology to meet them. Duke's curriculum is designed to provide such capabilities.

Engineering at Duke is characterized both by the technological and scientific environment of the School of Engineering and by the liberal arts environment of the University. The former arises from the effort to seek new knowledge and improved ways of implementing that knowledge; the latter arises from the natural and social sciences and humanities and represents a spirit of free inquiry into the nature of man and his world.

The School of Engineering offers a four-year program leading to the degree of Bachelor of Science in Engineering (B.S.E.) with majors in the Departments of Biomedical, Civil, Electrical, and Mechanical Engineering, and with a major available in individually approved interdisciplinary programs of studies. The following course requirements identify 15 courses that are common for all engineering majors: English 1; four mathematics courses stressing topics in analysis (calculus), linear algebra, and differential equations; Chemistry 11; Physics 51 and 52; four courses in the humanities and social sciences; and three courses in selected areas of





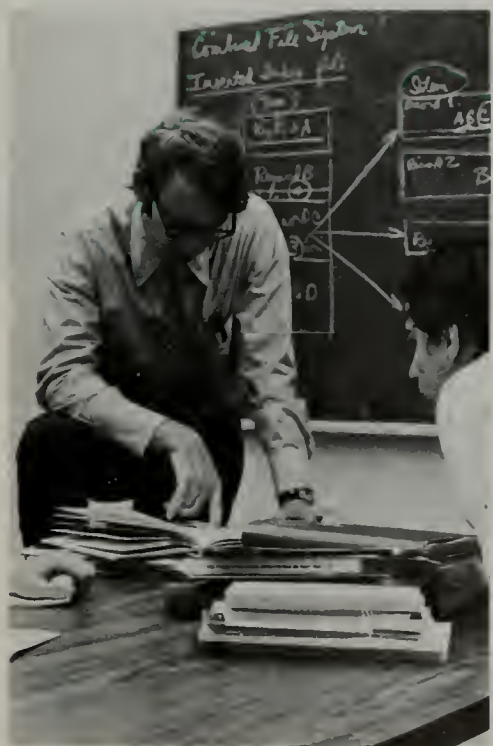
engineering science. Of the remaining 17 courses required for graduation, the major department places some specifications on between 8 and 11 courses, leaving between 6 and 9 as electives.

Small-group learning experiences are an integral part of the engineering program at Duke because of the relatively small enrollment in the School of Engineering. Independent study and project experiences are available, usually in the junior and senior years, and receive regular course credit.

Students may pursue programs which lead to the B.S.E. degree with a double major. The second major may be in another department in Engineering, a department in the arts and sciences, or in the Institute of Policy Sciences and Public Affairs. Engineering students currently are pursuing second majors in chemistry, mathematics, management sciences, public policy studies, psychology, and zoology. In fact, one of the strengths of the engineering program at Duke is its ability to prepare students for a variety of career options. Recent graduates not only have been sought after for immediate employment as engineers, but they have been accepted into graduate and professional schools in engineering, medicine, law, business administration, divinity, economics, oceanography, city planning, journalism, materials science, public administration, restaurant management, physics, and psychology.

Specific majors in Engineering may be found in the section of this *Bulletin* entitled Areas of Study.

"More women should consider a career in Engineering. Schools of Engineering are encouraging it, and the profession is ready."





THE SCHOOL OF NURSING

The School of Nursing offers a program designed to create professional competence, and also to develop a sensitivity to the needs of man in his environment. The curriculum is a flexible one, building on a firm base in the first two years and culminating in theoretical and clinical nursing courses in the second two years.

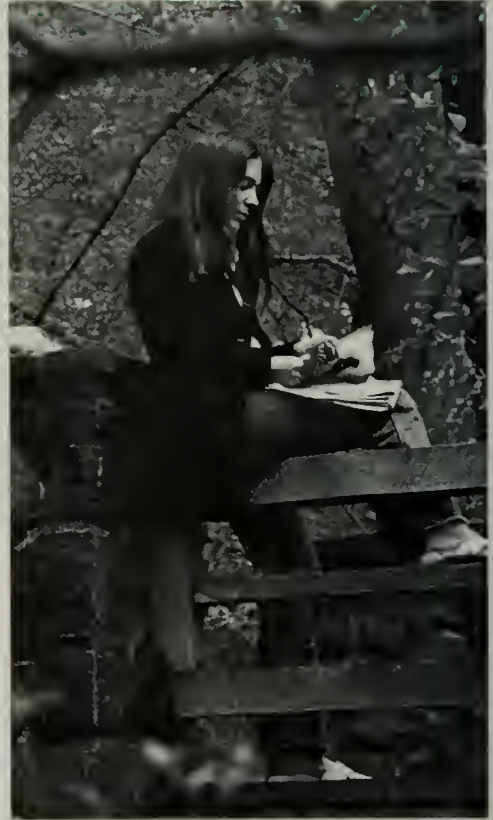
The School of Nursing is a unit of the University Medical Center and at the same time one of the three undergraduate divisions of Duke University. The Duke nursing student, then, enjoys the challenges of her own profession as well as the total educational experience that only a major university can provide. Instructional and clinical facilities may be found in the

823-bed Duke Hospital, in the University's Highland Psychiatric Hospital in Asheville, North Carolina, and in the Sea Level Hospital on the North Carolina coast, each offering unique opportunities for students to pursue special interests. The Veterans Administration Hospital, the Durham Health Department, the John Umstead Hospital, and the Lenox Baker Cerebral Palsy and Crippled Children's Hospital of North Carolina provide additional, easily accessible resources.

More detailed information about the nursing program is contained in the section entitled Areas of Study. Students are encouraged to write to the Office of the Dean in the School of Nursing regarding any questions they may have.



"For those who want them you've got as many personal experiences, small groups, and personal contacts with deans and professors as you could find at any university."



The Residential Setting

At Duke, the term, *in residence*, means more than simply living on campus. It implies the total university experience. Dormitory courses, living-learning corridors, and the basic interplay of disparate personalities lessen the distinction between the academic and the non-academic life.

Dormitory courses change from year to year with the interests of the students. Some of the most recent have been American Folk Music, The Emergence of the American Woman, Faulkner's Novels, Speculative Fiction: Modern Myth and Fantasy, Auto Engineering, Drama, Community Characteristics, Politics in Durham, The Psychology of Humor, and the Dialogue of Religions.

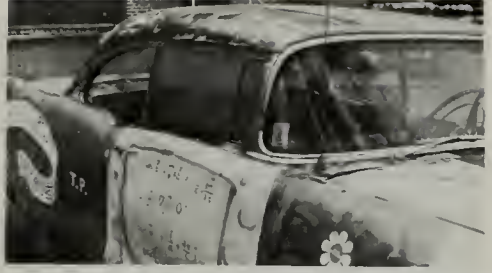
Students entering Duke choose from among the various living groups on the East or West Campus. Individual groups (women's and men's

dormitories, coeducational dormitories, freshman and four-year houses, and federations of dormitories) determine their social regulations by vote of the membership.

Fraternities and sororities exist as a supplement to the residential/social structure, and not as a substitute for it. The men who join fraternities often live together in sections of dormitories; the sorority structure is nonresidential. Approximately 45 percent of the students belong to fraternal organizations.

In some instances, distinct living groups exist for students with special interests. Such a case is Epworth Inn, a women's dormitory where student interest centers on the contemporary arts. Another type of living-learning group is SHARE, housed in Wilson House on the East Campus, in which men and women from the three undergraduate divisions attempt to create

"One of the biggest mistakes a new student can make is to form preconceptions of Southern 'gnits' or Northern 'freaks' before he gets here. In other words, where people come from has relatively little bearing on who they are or what they're into—at Duke or anywhere else. Ideas to the contrary can only inhibit you in the development of meaningful relationships."



a more deliberate blend of their personal and intellectual interests. A graduate couple serve as resident advisers, and a director administers the project. Dormitory courses and SHARE-sponsored projects are open to the entire undergraduate student body.

Beyond the walls of the campus, other students participate in an active Community Internship Program which allows them to gain experience in such local agencies as Project Head Start, the Durham City and County Schools, the Department of Public Recreation, and the Human Relations Commission.

Freshmen can be assured of dormitory space for four full years. Those who wish to live off campus, however, may petition to do so after the freshman year.

Dining facilities are available throughout the University. Students on the East Campus

pay a fixed 5-day or 7-day board sum; those on the West Campus pay for each meal individually.

Sometimes the sheer wealth of alternatives can prove overwhelming. The Counseling Center provides a professional counseling service designed to aid students in gaining a better understanding of themselves and the opportunities available to them. Counseling in the areas of career planning, educational opportunities, and personal and social adjustment is available to those who seek it. The Office of Placement Services provides career counseling as well and assists in the placement of Duke students in professional positions after graduation.

The Student Health Program is closely related to the teaching hospital of the University Medical Center and provides the security of excellent service during the undergraduate years.

The Active Life

The active life is generated from the counterpoint of interests and resources. Its structure may take one of the following forms:

STUDENT GOVERNMENT

The Associated Students of Duke University (ASDU) has evolved over the past few years into a strong advocate for student concerns and has gained an influential role in determining policy decisions which affect the entire University. ASDU's representatives serve on all University committees, all sub-committees of the Undergraduate Faculty Council of Arts and Sciences, and on the major committees of the Board of Trustees. Two recent graduates serve on the full Board. Groups formulating University social and residential policies have one-half student membership, and students participate in substantial numbers on search committees for high-level administrators.

The Engineers' Student Government coordinates the activities of all student organizations within the School of Engineering, acts as a liaison with the Associated Students of Duke University, and represents the interests of engineers in their relationship with the public, faculty, and administration.

The Nurses' Student Government Association governs the student body of the School of Nursing and encourages each student to develop and exercise personal, academic, and professional responsibility, and at the same time to realize her autonomy within the regulations of the community.

The Men's Interfraternity Council (IFC) is composed of eighteen Greek letter residential living groups—fifteen national and three local fraternities. The purpose of the IFC is to establish and maintain a framework for harmony and growth for the fraternity system, and to promote programs which improve the living situations and the educational life in the member houses.

Panhellenic Council, representing nine sororities, works to unify the campus sorority structure and to coordinate activities in which Greek women participate. Although the council encompasses legislative, executive, and judicial duties, each sorority manages its own internal affairs.

The Undergraduate Judicial Board has twenty-one members. Twelve are students from each of the undergraduate colleges and schools, six are faculty, and three are representatives of the administration. The Board adjudicates student disciplinary cases and disputes.



"The political instinct is not as evident now as it once was, but students seem to have remained more conscious of the interaction of campus and international politics. The lettuce boycott, Watergate, the environment, consumer concerns, the local freeway—these are the issues about which students are most vocal."





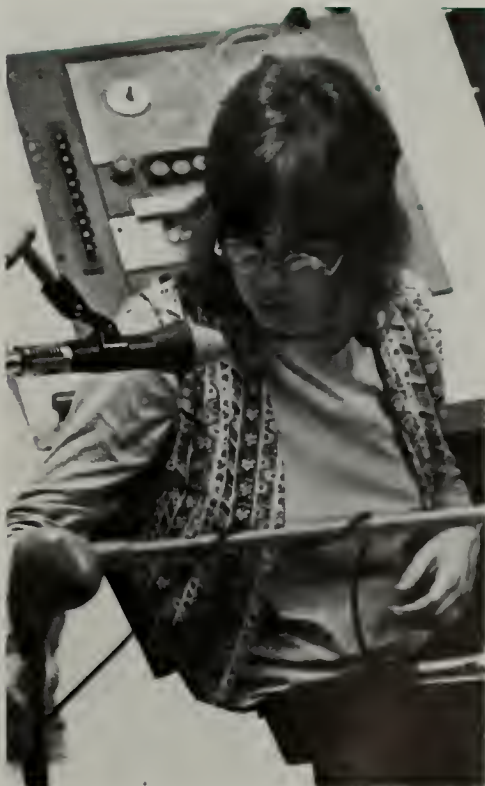
"Bring a bike, not a car. You'll be able to see more and the exercise might do you some good."



"Life in a dorm is a test of your ability to get along with others, and an important part of the liberal education that you've come to Duke to receive."



"Durham provides the real world setting for the University, the human resources so necessary in the fight against ivory towerism. The University, on the other hand, provides an extraordinary medical center, a large percentage of the city's employment, and intellectual resources sufficient to satisfy anyone's longing for the city life."





"Located at the top of the tower of the Student Union Building, the Office of the Association of African Students serves as a personal grotto—a place of solitude where Black reigns undisputed. Escape is not advocated, but the Society does serve as a retreat if such is needed."

THE UNIVERSITY UNION

The Union exists to promote, stimulate, and develop social, recreational, cultural, and educational activities on the campus. It is actively involved in the planning and fund-raising activities for a new Union Building.

The Drama Committee works to further dramatic interest and understanding on the campus and in the community. Professional companies provide the major thrust of the committee's involvement through its "Broadway at Duke" series, although the committee's activities include seminars, receptions, cast parties, workshops, and readings.

The Freewater Film Society, which is beginning its second year as a Union Committee, sponsors two film series, one dealing with foreign and classic films and the other with recent popular films. Freewater is also concerned with the production of student films, some of which have been nationally recognized.

The Graphic Arts Committee provides the campus with a series of exhibits by local and nationally known artists. It sponsors craft fairs and student competitions in photography and art.

The Major Attractions Committee brings to Duke quality contemporary groups, with its main emphasis on rock, pop, and blues performers.

The Majors Speakers Committee sponsors appearances of prominent individuals in all fields of endeavor—politics, government, education, science, sports, religion, and the arts.

The Performing Arts Committee attracts major performers in the fields of jazz, folk, modern dance, ballet, and other areas of community interest. It sponsors local and regional groups, including the Carolina Repertory Company and the Triangle Recorder Society. Master classes, lecture-demonstrations, and informal receptions involving the arts are scheduled with most performances.





"And then there are the frisbees, twirled at blinding speed by students affirming self, life, academic procrastination, ecology, or any other quality with faintly intellectual implications."



THE ARTS

The Symphony Orchestra prepares and presents two major concerts each year, usually with a distinguished soloist.

The Wind Symphony stages two formal concerts each year and a series of informal concerts, many of them in the Sarah P. Duke Gardens. The repertoire includes works written on commission for Duke University. A concert tour is scheduled each spring.

The Marching Band and the Pep Band bring musical pageantry to major athletic events.

The Chapel Choir of approximately 150 voices provides music for the Duke University Chapel worship service and presents in concert performances examples of the sacred masterpieces of Western civilization.

The University Chorale performs secular choral works of historical and contemporary interest. A spring concert tour takes this 100-member chorale to a number of metropolitan centers along the Eastern seaboard. Last year

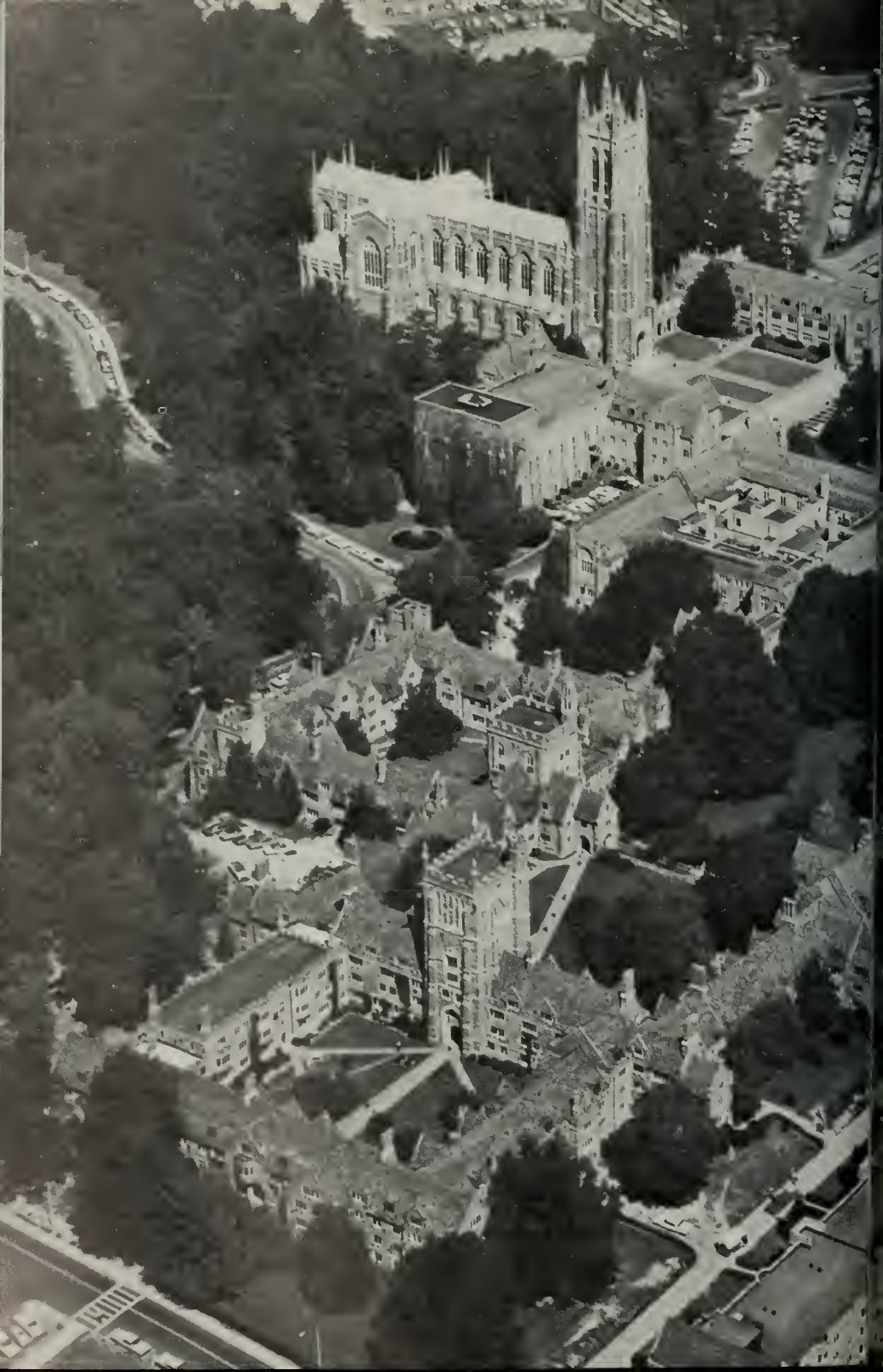
the Chorale performed at the lighting of the National Christmas Tree in Washington, D. C.

The Madrigal Singers is a small ensemble whose repertoire features Renaissance, Baroque, and twentieth-century compositions.

Student Chamber Music Ensembles, organized formally for course credit and informally as an extracurricular activity, explore the literature for string, wind, and keyboard media.

Duke Players presents four major plays and several workshop productions each year. Plays are presented in $\frac{3}{4}$ round, arena, and proscenium theaters. The organization is open to all students, and members serve in all phases of dramatic art.

Hoof 'n' Horn, a self-supporting theatrical group, presents a minimum of three musical productions a year, two or more in an intimate 120-seat theater called "Fred," and one larger production in Page Auditorium during Joe College and graduation weekends. *Cabaret*, *The Fantasticks*, *Little Mary Sunshine*, *Thirteen Clocks*, *The Apple Tree*, and *Promises, Promises* are selections from recent years.





THE MEDIA

The Publications Board, composed of students, faculty, and administrators, oversees all official undergraduate student publications. It is empowered to choose editors and business managers and to review and approve the financial statements of all franchised publications.

The Archive, Duke's literary magazine, seeks to strengthen and encourage the growth of creative arts of Duke by publishing contributions from the Duke community in the fields of poetry, fiction, book reviews, essays, fine art, and photography. The staff also sponsors the Blackburn Literary Festival.

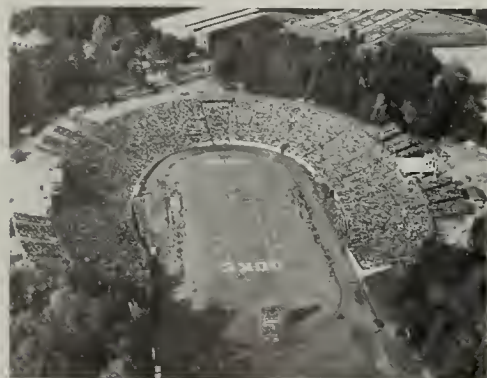
The Chanticleer is the University year-book.

The Duke Chronicle, the campus newspaper published Monday through Friday of each week, covers campus and national news and sports and includes national news coverage provided by the New York Times News Service. Positions for work in all departments, including news, sports, features, arts, business, and photography, are open to all undergraduates.

The DukEngineer is a semi-technical magazine published four times a year by students of the School of Engineering.

Hotline, published monthly by the cadets of Air Force ROTC, contains organizational news, interviews, and editorials.

WDBS, Duke's radio service to the Durham, Chapel Hill, and Raleigh area, is programmed by a staff of nearly eighty undergraduates. Broadcasting progressive rock, jazz, and concert music from a control room-studio complex on East Campus, the station's FM stereo signal reaches eight college and university campuses in the Triangle area. Positions on the news, sports, announcing, and business staffs are open to freshmen. WDBS-AM is a campus-only service allowing the opportunity for on-the-air experience.



RELIGIOUS ORGANIZATIONS

Religious activity at Duke is voluntary and personal. Students may choose traditional or independent groups or small, intentionally religious communities. The following are among those religious organizations which continue from year to year:

Duke University Christian Council
Baptist Center
Campus Crusade for Christ
Christian Science Organization
Episcopal Center
Fellowship of Christian Athletes
Hillel
Inter-Varsity Christian Fellowship
Lutheran Community
Newman Club
United Ministries
YM-YWCA



ATHLETICS

Varsity sports have a long history of successful intercollegiate competition. Men participate in varsity baseball, basketball, fencing, football, golf, lacrosse, soccer, swimming, tennis, track, and wrestling. Women's varsity teams compete in basketball, fencing, gymnastics, hockey, swimming, tennis, and volleyball.

Intramural activities provide an opportunity for every student to engage in athletic competition. Participation, not skill, is emphasized. Recently lighted tennis courts and a new student activities building add to the stature of the popular intramural program.

Independent recreation may be pursued whenever the physical education facilities are not in use for intramural and varsity practice. Equipment for most activities is available from the Department of Health and Physical Education.



MISCELLANY

A complete annotated list of undergraduate activities would be unwieldy; students whose interests are not listed below are encouraged to write for information.

A.I.E.S.E.C.

American Field Service

Association of African Students

Badminton Club

Bench and Bar Society

Blue Jeans

Cheerleaders

Chess Club

Chinese Student Association

College Republicans

Committee for Concerned Scholars

Debate Team

Demolay

Directions for Educated Women

Duke Dance Group

Duke Folksong Society

Duke Jazz Ensemble

Duke Ski Team

ECOS

Food Co-op

Football Club

Goat Watching Society

International Club

International Folk Dance Club

Karate Club

Duke Men's Alliance

North Carolina Public Interest Research Group

North Carolina Student Legislature

Nereidians

Duke Outing Club

Photography Group

Pre-Med Society

Rugby Football Club

Sailing Club

Skeet Club

Soccer Club

Sport Parachute Club

Tocqueville Society

Varsity Television Club

Women's Alliance

Young Democrats

Young Americans for Freedom



Admission

"Our concern is for the scholar who accepts his role as a social being. Not a social butterfly, we hasten to add, but one who cares for those around him, whose nobility will lift him away from the passivity of receiving an education."

Freshman Admission

Duke University looks beyond the basic characteristics of academic competence possessed by the majority of applicants. It seeks in each prospective student, regardless of race, color, religion, sex, or national origin, evidence of intellectual promise, maturity, and positive energy.

Since the number of students applying exceeds the number of available positions, selectivity is a necessary part of the admissions process. Although no single criterion will spell the success or failure of an application, the secondary school record is regarded as one of the most significant documents in the application, because it has proved to be the soundest indicator of academic ability, potential, and motivation. Secondary school recommendations (as well as additional letters of recommendation) give meaning to the objective information and are considered extremely useful in determining the qualifications of an applicant.

Requirements concerning secondary school subjects are flexible, although at least 12 high school units must be in college preparatory subjects such as English, foreign language, history and social studies, mathematics, and physical or biological sciences. Applicants to the School of Engineering are advised to present 4 units of mathematics and at least 1 unit in physics or chemistry.

It is the performance of the individual applicant within his own school environment which particularly concerns the Committee on Admissions. The Committee recognizes the varying levels of instruction and types of evaluation utilized by secondary schools and, therefore, imposes no minimum rank that a candidate must achieve before he will be considered. A profile of the current freshman class may be found among the last pages of this *Bulletin*.

All freshman candidates are required to take the College Entrance Examination Board Scholastic Aptitude Test (SAT), the English Composition Achievement Test, and two other achievement tests of their own choosing. Candidates for the School of Engineering must take an achievement test in math. Students should observe the test deadline set forth in the admissions calendar provided on page 41.

Although it is clearly to the applicant's advantage to perform competently on the tests of the College Entrance Examination Board, it should be remembered that Scholastic Aptitude Tests are not considered by the Committee on Admissions to be infallible predictors of academic success on the college level. Rather, they are viewed as imperfect indicators to be employed in conjunction with additional application materials. There is no minimum score that a student must earn on the SAT before he will be considered for admission, and no maximum score that will guarantee admission to the University.

Just as the Committee has refused to establish a minimum test score and class rank which prospective students must achieve before being considered for admission, it has also maintained an open policy with regard to the geographic distribution of the student body. The University's commitment to the region, however, is reflected in the fact that approximately 35 percent of a diverse and distinctly national student body resides in the southeastern United States.

Applications may be obtained from the Office of Undergraduate Admissions, 614 Chapel Drive, Durham, North Carolina 27706. A financial aid form will be enclosed.

Most students file their applications and the

\$20 application fee early in the fall of their senior year. The secondary school report forms provided in the application packet should be given to the appropriate school official with the request that they be submitted to the University as soon as possible and no later than the application deadline.

February Notification exists for the student who has a clear interest in Duke and who wishes to hasten the decision on his application. The application deadline for February notification is December 15 of the senior year, thus enabling candidates to take achievement tests as late as November 23, 1974 and SATs as late as December 7, 1974. Earlier test dates are recommended, however. Decisions are mailed by February 1, and accepted candidates pay their reservation fees by February 15.

Students applying for February notification are not restricted to one college application; neither are unsuccessful applications postponed until the April 15 notification date. Rather, the candidate learns of the decision, *positive or negative*, by February 1.

February notification is no more competitive than April notification.

April Notification candidates observe a February 1 application deadline, although most students file their applications and the \$20 application fee during the fall of the senior year. Scholastic Aptitude Tests must be taken by December 7, 1974, and achievement tests must be taken by January 11, 1975. Decisions will be mailed by April 15, and accepted candidates should pay their reservation fees by May 1.

Midyear Admission is geared to the accelerating high school student, to the accepted Duke candidate who postpones matriculation for one semester, and to the high school graduate who applies to college after the senior year. Students who have been accepted for September admission may request that their places be held for the semester beginning in January, and in many cases they will find the Committee on Admissions sympathetic to their plans for the intervening semester. Some students work to earn money for college; others gain valuable pre-professional or travel experience; still others seek simply to gain an extra measure of maturity before entering college.

The application deadline for new candidates is October 15, although test dates fall considerably earlier. Achievement tests must be taken no later than May 4, 1974, and SATs no later than June 22. Students will be notified of the decisions on their applications by November 15, with the expectation that those who are accepted will reply by December 1.



Transfer Admission

A limited number of transfers are admitted to the University each semester on a non-resident basis. Most applicants have completed two and usually three semesters of work at fully accredited institutions and have achieved at least a *B* average before they submit applications for transfer. Transfer applicants are asked to present Scholastic Aptitude Test scores for review, although no achievement tests are required. In order to earn a Duke degree, transfers should expect to spend the last two years of undergraduate work in residence at the University.

Because of limited facilities, the number of spaces available for transfer in the School of Nursing is very small. Prospective candidates should consult the Office of Admissions for further information before making application.

The Office of the Registrar evaluates the transcripts of transfer applicants only after they have been accepted, and it is difficult to predict, therefore, which courses will be accepted for transfer credit. Generally, however, courses taken at fully accredited institutions which are



“Transfers usually have to live off campus unless a space in a dorm becomes available once they’re here. A lot of people like it that way, but you have to work a little harder to become part of the student community.”



“In the late 1880’s, a new Trinity College president, who also coached football, set out to improve academic standards, and one junior found himself demoted annually until, four years later, he was back in the college’s preparatory classes.”

similar to courses offered at Duke will receive specific or elective credit from the University. A course in which a grade less than C- has been earned cannot be accepted for transfer credit. Pass/fail courses receive pass/fail consideration at Duke.

Although transfers cannot expect to live on campus, the Office of Housing Management assists them in finding accommodations (and often roommates) in apartments near the campus. Students desiring information about housing should write to the Director of Housing Management.

Students who wish to be considered for September admission must submit applications by February 1; decisions will be mailed by April 15. For January admission, applications must be submitted by October 15; decisions will be mailed by November 15. In both cases, reservation fees must be paid within fifteen days after acceptance.

Applications may be obtained from the Office of Undergraduate Admissions, 614 Chapel Drive, Duke University, Durham, North Carolina 27706.

Visits to the Campus

Personal interviews are not required; in fact, the number of students requesting interviews has increased so dramatically in recent years that it is often impossible to grant all requests for individual appointments. Because the interview is designed primarily to assist students in learning about the University, those who cannot arrange an individual appointment should not be reluctant to join one of the group information seminars conducted each weekday by a member of the admissions staff. Student-led tours usually follow the group sessions.

From January through April when applications for admission are being reviewed, individual interviews are suspended, although the group sessions continue.

If a candidate wishes to schedule an appointment at other times of the year, it would be wise to write at least two weeks in advance of the proposed visit. Monday and Friday appointments are, understandably, in the greatest demand.

In many cities throughout the country, personal interviews are available to candidates through local Alumni Admissions Advisory Committees. If such a committee exists in a candidate's community, he will be notified and a personal interview arranged. These interviews usually take place during January and February.



"There are more ways than one to conduct a thoughtful search. We can put you in touch with undergraduates who have volunteered to correspond about their own experiences. And if you have questions about an academic discipline for which we can't find answers, feel free to write to the Director of Undergraduate Studies in the department concerned."

Admission Calendar

January Freshmen

May 4, 1974*	Last Achievement Test date for January admission
June 22, 1974*	Last SAT date for January admission
October 15, 1974	Deadline for submission of freshman applications for January admission
November 15, 1974	Freshman applicants notified of admission and financial aid decisions
December 1, 1974	Accepted freshman applicants pay reservation fees

September Freshmen—February Notification

November 2, 1974*	Preferred SAT date for February Notification applicants
November 23, 1974*	Last Achievement Test date for February Notification applicants
December 7, 1974*	Last SAT date for February Notification applicants
December 15, 1974	Deadline for submission of February Notification applications
February 1, 1975	Candidates notified of admission and financial aid decisions
February 15, 1975	Accepted candidates pay reservation fees

September Freshmen—April Notification

November 2, 1974*	Preferred SAT date for April Notification candidates
November 23, 1974*	Preferred Achievement Test date for April Notification candidates
December 7, 1974*	Last SAT date for April Notification candidates
January 11, 1975*	Last Achievement Test date for April Notification candidates.
February 1, 1975	Deadline for the submission of April Notification applications
April 15, 1975	Candidates notified of admission and financial aid decisions
May 1, 1975	Accepted candidates pay reservation fees

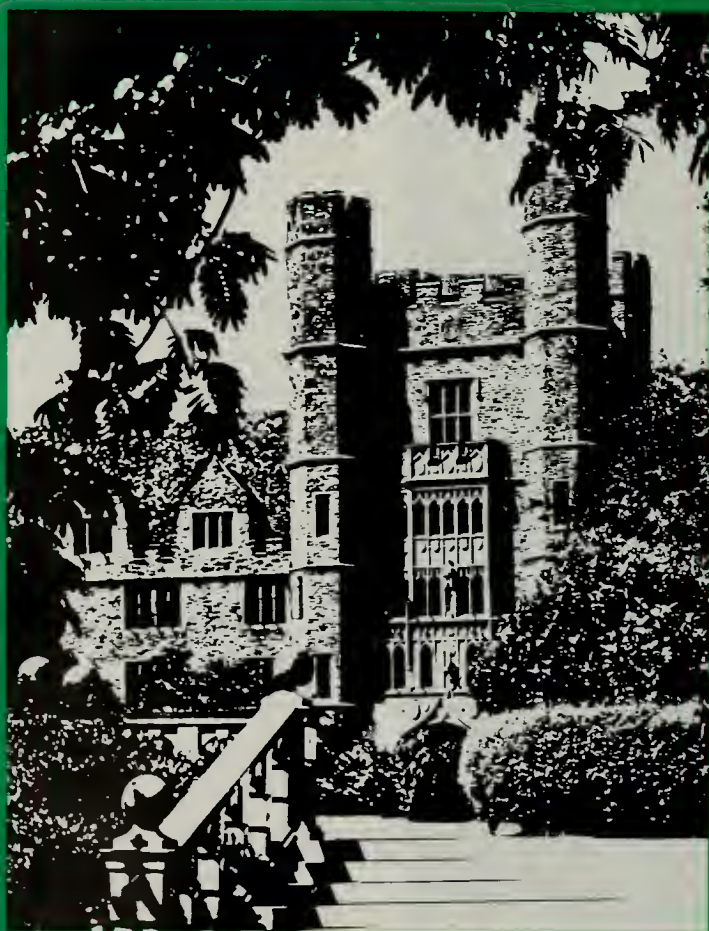
January Transfers

October 15, 1974	Deadline for submission of January transfer applications
November 15, 1974	Candidates notified of admission and financial aid decisions
December 1, 1974	Accepted candidates pay reservation fees

September Transfers

February 1, 1975	Deadline for submission of September transfer applications
April 15, 1975	Candidates notified of admission and financial aid
May 1, 1975	Accepted candidates pay reservation fees

*Registration deadlines for SAT's and Achievement Tests fall approximately one month before each test date.



Financial Information

"I had conceived of Duke as an intellectual haven for the materially blessed, but we come away with a much happier picture. I've seen examples of students in the greater Search which have spoken frequently to me of the type of student and atmosphere Duke is somehow nurturing."

Expenses

Total expenses differ, of course, with the tastes and habits of the individual student at Duke, but on the average a student spends slightly over \$5,000 during the academic year. Basic expenditures, with a reasonable sum allotted for books and supplies, follow:

Tuition \$2,780

Income from endowment and contributions from alumni and other men and women make it possible for the University to bear more than half the total cost of a student's education at Duke.

Room and Board (average) .. \$1,500

The majority of rooms on campus are occupied by two students, although a limited number of single rooms are available. Cost varies according to accommodations. Men and women on the East Campus choose between a 5-day and a 7-day board option. Students on the West Campus pay for each meal individually.

Books and Supplies \$200

These estimated expenses are subject to change, and the prospective student should consult the Office of Undergraduate Admissions for the most current information.

An initial, nonrefundable reservation fee of \$120 is paid upon acceptance to the University in order to reserve a place in the freshman class.

Assistance

A good college education, especially in a private institution, represents financial sacrifice for almost every family. Although no uni-

versity could promise to ease completely the financial strain of college, Duke University's financial aid policy endeavors to ensure that no student who is admitted to the University will be prevented from attending because of lack of funds.

Qualified applicants are admitted to Duke University without regard to their need for financial assistance. Students in need of financial assistance are, therefore, encouraged to apply for both admission and financial aid; they will be notified of the financial decision at the time of acceptance.

Because the degree of assistance is determined on the basis of need, all financial aid candidates submit a Parents' Confidential Statement (PCS) to the College Scholarship Service in Princeton, New Jersey. After the admission decision is made, the Director of Financial Aid reviews the Service's evaluation of the PCS and determines the degree and type of financial aid which will be necessary to allow the student to attend the University.

Of course, not all financial aid awarded to college students comes from the institution itself. Every applicant should consult his guidance counselor concerning the many national and local organizations providing assistance for higher education.

The Basic Educational Opportunity Grant Program exists for students whose families will need considerable financial assistance. Applications may be obtained from the high school guidance counselor or the local post office.

A number of families make use of the Federal Insured Loan Program, designed to guarantee or ensure student loans made by banks or other incorporated state lending agencies. The interest rate of 7 percent will be paid by the government while the students who qualify are in school. The Financial Aid Office can provide the address of the lending agency for each state. Duke University itself is a guaranteed lender.

The Aid Package

The "package" is the form of financial assistance which is most familiar to undergraduates. The combination of University gift funds and opportunities for self-help enables Duke to extend its resources to all whose PCS evaluations demonstrate a need for them. Some portion of the aid offered will normally be in the form of grants, long-term loans, and employment. Acceptance of one portion of the assistance package does not obligate the student, however, to accept all portions of it. Students

making normal academic progress toward graduation may expect financial assistance as long as the need for it is demonstrated.

Loan funds supplied by the federal government are available to financially qualified students. Repayment of loans usually begins nine months after the student ceases full-time study. Interest accrues at the rate of 3 percent; complete payment is scheduled to take place within a ten year period.

Nursing loans are also funded by the federal government and are available to qualified students in the School of Nursing. Interest accrues at the rate of 3 percent annually, beginning nine months after a student ceases full-time study.

Employment, the other portion of the self-help aspect of the financial aid package, usually requires between nine and fifteen hours a week and provides an average stipend of \$650. The money is paid directly to the student as the work is performed. The Placement Office serves as a clearinghouse for part-time jobs both on campus and in the city of Durham.

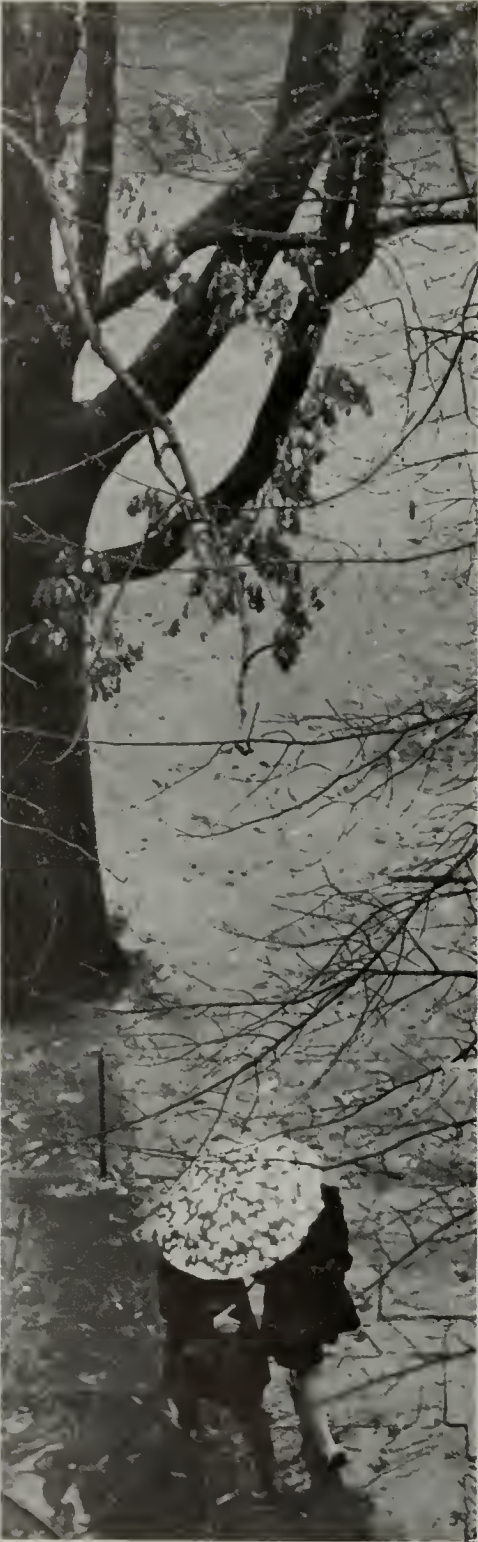
Gift awards, in most cases, make up the difference between the sum allotted for self-help and the student's total financial need. Duke has many scholarships and grants-in-aid, based on need, which are available annually from personal endowments and corporation sources. These named scholarships may be awarded on the basis of achievement in a particular field or because of the generally outstanding quality of a student's record.

A single financial aid application, included among the application materials, will cover all Duke scholarships. With the few exceptions noted on the application form, a student need not apply for a specific award, for the Financial Aid Office will determine the appropriate scholarship for each applicant.

- Angier B. Duke Memorial Scholarships are awarded to students whose superior records mark them as young men and women who give outstanding promise of becoming leaders in their chosen fields of endeavor. Candidates for admission to the freshman classes in Trinity College, the School of Engineering, and the School of Nursing are eligible to apply. Applicants for the scholarship are required to submit with their application a supplementary Angier B. Duke Memorial Scholarship questionnaire and two additional references.

Students with demonstrated financial need may receive up to \$4,500 annually. Angier B. Duke Scholars without demonstrated need receive \$500 per year as an honorary stipend. The awards are renewable for the four undergraduate years.





Angier B. Duke Scholars may choose to spend one summer of their undergraduate careers studying in a special seven-week program at Oxford University in England, or they may choose to undertake a self-determined educational experience which will be funded up to \$1,000 by the Angier B. Duke Memorial Scholarship Program.

Finalists for the Angier B. Duke Scholarship will be selected and invited to participate in the finals competition which is held late in March on the Duke University campus. Notification of winners will be made prior to April 15. All qualified students, regardless of financial need, are encouraged to apply.

- Several scholarships have been established in recent years which give priority to students in specific counties in North Carolina. Among these are the W. N. Reynolds Memorial Scholarships, awarded first to children of employees of the R. J. Reynolds Tobacco Company and then to residents of Forsyth County, and the J. Welch Harriss Scholarships, awarded on the basis of merit and need, first to male students from High Point and then to those from Guilford County. The newly established Braxton Craven Scholarship will be awarded on the basis of merit, first to students from Davidson County, and then to students from the State of North Carolina. The Financial Aid Office will provide additional information to students interested in any of these scholarships.

- Duke's renewed commitment to the arts has given rise to several substantial scholarships in recent years. The Mary Duke Biddle Scholarship in Music Composition, a \$2500 annual award, is available to a member of each entering class and is renewable from year to year as long as the student does satisfactory work. The student applying for this award supplements his application with samples of his musical compositions. Eligibility is limited to students planning to major in music.

Students who are talented string, woodwind, or piano performers, or who are students of voice, may compete for the A. J. Fletcher awards, based on merit and need. String scholarships will predominate.

- Nursing students should explore the Florence K. Wilson Scholarship and the Marian Sanford Sealy Scholarship. The Lelia R. Clark Scholarship was established in 1971 to cover tuition and fees for a nursing student, preferably from North Carolina.

- Engineering students may qualify for one of the J. A. Jones Memorial Scholarships, sponsored through the Jones Fund for Engineering. The awards range from a yearly sum of \$500 to \$3600, depending on the degree of need. The

Jones Scholarships are granted for the first year without regard to the student's intended major within engineering, and they are renewable on the same terms for the second year as long as the student does satisfactory work. For the junior and senior years, they are limited to majors in civil engineering.

- United Methodist Scholarships are available on a need basis to Methodist students who have been leaders in their local Methodist Youth Fellowship Groups. Christian Vocation Scholarships are available, also on a need basis, to students preparing to enter full-time religious work. Recipients sign notes which are cancelled when they have entered full-time Christian work following graduation. In many cases, children of ministers in the North Carolina and the Western North Carolina Annual Conferences of the United Methodist Church may be eligible to receive a remission of the tuition charge. Details of eligibility may be found in a brochure prepared by the Office of Financial Aid.

- A limited number of awards will be made each year to qualified students from other countries who enter either as freshmen or as students with advanced standing. Candidates for these awards are required to submit the Application for Scholarship and Financial Aid and the Parent's Confidential Statement of the College Scholarship Service provided by the Admissions and Financial Aid Offices of Duke University.

- Beginning in the second semester of their freshman year, cadets are eligible to compete for an Air Force ROTC College Scholarship. This scholarship includes full tuition, books, laboratory fees, and \$100 per month subsistence. The scholarship is awarded on a merit basis and considers academic achievement, leadership potential, and overall performance.

- The NROTC College Scholarship Program provides for four years of tuition, fees, and textbooks at government expense, plus subsistence and summer active duty pay which amounts to approximately \$1,450 per year. Selection for this program is made on the basis of an annual nationwide competition conducted by the Department of the Navy.

For further information regarding all named scholarships, write to R. Fred Zuker, University Scholarship Officer, Admissions Office, 614 Chapel Drive, Durham, North Carolina 27706. A brochure describing the financial aid program in greater detail may be obtained from the Office of Financial Aid, 614 Chapel Drive Annex, Duke University, Durham, North Carolina 27706.



Areas of Study

*... provided any special interest of
yours is dealt with at Duke, its major re-
sources will match your needs and abilities
and will test your character and stamina,
your determination to do serious work, to
live a free and serious life. . . ."*

Department titles can often be misleading. A major in Russian, for instance, finds his area of study under the heading Slavic Languages and Literatures; business administration translates into Management Sciences. If your field of interest is not represented in this section in the form you may have anticipated, write to the Office of Undergraduate Admissions for clarification.

Allied Health Programs

Majors in allied health fields are offered by the Duke University Medical Center. Students who wish to become medical technologists, physician's associates, or pathology assistants should write to the Division of Allied Health, Duke University Medical Center.

Anthropology

Anthropology is a comparative discipline which studies man everywhere, in all aspects of his nature and behavior. Physical anthropologists study the origin and development of man's physical nature and his place in the biological world. Their major concerns are with the study of fossils, genetic processes, and contemporary primate species. Psychological anthropologists investigate individual enculturation and growth and the psychological characteristics of specified groups of peoples. Archaeologists and prehistorians study the events and processes of man's unwritten past. Anthropological linguists analyze contemporary languages, as well as languages of the past, and trace relationships between language and culture. Social and cultural anthropologists, who form the largest group, try to determine the principles underlying human social and cultural behavior of all kinds. Contemporary tribal peoples, peasant societies, new nations, the modern city, religious and

other cultural revival movements, music and art forms of peoples of the world—all are the subject matter of cultural and social anthropology.

The Department of Anthropology offers a comprehensive program to undergraduates who want to specialize in the comparative study of human societies and cultures and the human physical form. Two general courses (Anthropology 93 and 94) introduce students to the scope, concepts, and methods of anthropology while preparing them for more specialized studies at an advanced level. In the 100-series of courses, the student may take theoretical courses concentrating on such topics as religion, politics, ecology, psychology, and kinship, or area courses devoted to ethnographic and theoretical materials on American Indians, Africa, Oceania, South Asia, and the Middle East. Advanced students are eligible to take 200-level courses where, along with graduate students and faculty, they will participate in library or even field research and sharpen their competence in their particular subfield.

Most students who choose anthropology as a career will find that an advanced degree is a prerequisite for obtaining a satisfying position, given today's competitive job market. A major in anthropology—alone or in combination with another relevant discipline—can provide an incomparable background for graduate work in all disciplines (law as an example) that concern human behavior. Men and women who plan to begin their careers directly after graduation from college can profit from a single or joint anthropology major in many types of management training programs and social services.

Art

The field of art embraces two areas—the practice of art and art history—which represent different, but not mutually exclusive avenues for the acquisition of knowledge and experience in the visual arts.

The practice of art as experienced in the studio is limited to basic design, printmaking, and painting through which the student may gain sufficient experience to define his interests and aptitudes for later specialization. The program does not attempt to accomplish professional training in specific practical art skills, but rather to fulfill an objective of liberal education to which the art experience is a contributing factor. A talented student may, upon graduation, enter a graduate or professional school and expect to accomplish his professional objectives within a two or three-year period of concentration.

Art history is an aspect of cultural history which merges with other humanistic areas, such as philosophy, religion, and literature. By the nature of its research methods and documentary sources it presupposes a concurrent development in language tools.

A student electing the art major concentrates in either art history (8 courses) or in studio (7 courses). The department offers an honors program in art history which leads the superior student into independent study and research as a prelude to graduate study in the field.

A new art museum now makes possible first-hand study of works of art in the permanent Brummer collection of medieval art as well as in significant and specially prepared exhibitions. Some opportunities for museum study and method are open to qualified students.

Biomedical Engineering

Biomedical Engineering applies the quantitative methodology of engineering to problems in medicine and biology. Some biomedical engineering majors at Duke are pursuing premedical programs to qualify themselves for admission to medical school; others are preparing for careers as practicing biomedical engineers in health-care units such as hospitals, or in fields such as occupational health and safety, environmental engineering, and man-machine systems design.

The academic program in biomedical engineering stresses mathematical modeling of biological systems using digital and analog computers, instrumentation and circuitry for monitoring biological systems, analysis and design of artificial organs, and quantitative consideration of environmental variations on organisms. In addition to five required courses in biomedical engineering, basic course work in mathematics, computer science, chemistry, physics, zoology, and the engineering sciences is required for the broad foundation of biomedical engineering. Typically, twelve of the thirty-two courses required for the B.S.E. degree are relatively free electives—a minimum of five in the humanities and social sciences.

Students intending to major in biomedical engineering should designate the School of Engineering in their applications for admission to Duke University. Additional information about the study of engineering may be obtained from the Office of Undergraduate Admissions.

Black Studies

Black studies is designed to provide instruction and study directed toward the concerns

and particular experiences of Black America. Though intensive work (a major) is worthwhile and encouraged, it is recognized that course offerings in Black studies are important to many students' primary fields of endeavor, as well as comprising an essential component of a liberal arts education.

The student majoring in Black studies will receive special counseling in planning his course of study and in considering his future vocation.

Botany

The Botany Department faculty represents a broad spectrum of disciplines, with four areas being particularly strong: ecology, systematic plant biology, genetics, and physiology. In addition to laboratories in the Biological Sciences Building, students and faculty have access to the phytotron (one of two facilities in the Southeast for studying plant growth under controlled conditions), an experimental plot (for local ecological studies), and the Marine Laboratory at Beaufort (for oceanographic studies). The undergraduate who majors in botany receives considerable personal attention and develops an individual undergraduate program under the guidance of the Director of Undergraduate Studies. Classes are small and independent work is stressed. In addition to programs which provide a strong background for advanced work in the field, careful course selection provides a broad biological background suitable for entry into several other areas. A new interdisciplinary program in environmental studies, an interdisciplinary approach to oceanography, and studies in plant systematics and organismal diversity are examples of the kinds of programs that can be developed.

Chemistry

Chemistry is concerned with matter, its structure, properties, and the nature of the reactions which change it. It, therefore, supports all the basic biological and physical sciences, biochemistry, and the whole spectrum of paramedical studies.

The Bachelor of Science degree is ordinarily elected by students intending to pursue study at the graduate or professional level in chemistry or a closely allied science. The Bachelor of Arts degree offers a grounding in most basic areas of chemistry while providing full opportunities for election of broadly related work. In both degree programs, courses appear in sequence from general chemistry to the progressively more theoretical fields. Organic chemistry describes the geometry of individual compounds of carbon,

the mechanistic principles underlying chemical change as well as the methods of synthesis of organic compounds. Physical chemistry offers a critical, rigorous examination of the principles of chemistry including the states of matter, quantum phenomena, thermodynamics, and chemical kinetics. Analytical chemistry treats in-depth separation procedures and techniques of measurement and chemical analysis such as spectroscopic and electroanalytical methods. Inorganic chemistry applies physical and mathematical principles to studies of reactions, bonding, and structures of compounds of elements other than carbon.

Independent study completes the major for the Bachelor of Science degree and provides the student the first significant opportunity to focus his education and experience on a piece of research under a faculty member in the Department. The student electing the Bachelor of Arts degree major may also take independent study, but normally seminars on advanced topics are taken to complete this program of study.

Civil Engineering

Civil Engineering is the art of designing, analyzing, and building constructed facilities. Civil engineering majors at Duke may emphasize one of six specialty areas or take a general program to develop a broad professional background. The six specialty areas are: environmental engineering—developing systems for decreasing air and water pollution; water resources engineering—using and preserving water resources, including the ocean; geotechnical engineering—designing earth structures and foundations; mechanics and materials engineering—analyzing the behavior of construction materials under load; structural engineering—designing safe structures such as buildings, bridges, and air frames; and urban engineering—developing systems for mass transportation, public health and safety, and land use.

The academic program is both flexible and progressive, but rigorous enough to prepare graduates for immediate professional practice. The curriculum features a minimum of nine civil engineering courses and a broad foundation in mathematics and the physical sciences. Usually ten of the thirty-two courses required for the B.S.E. degree are relatively free electives—a minimum of four in the humanities and social sciences.

Prospective majors in civil engineering should designate the School of Engineering in their applications. Additional information on the study of engineering may be obtained from the Office of Undergraduate Admissions.

Classical Studies

The field of classical studies, encompassing not only the languages and literatures of ancient Greece and Rome, but also their history, philosophy, art, and archaeology, takes as its aim the establishment of an informed and critical view of the foundations of Western culture. The specialist in classical studies may be a student of the social and economic history of a portion of the ancient world; he may analyze the imagery of great works of ancient literature, the iconography of pictorial or architectural monuments, or the survival of texts in the manuscript tradition.

In order to accommodate the wide range of interests embraced by the field, the Department of Classical Studies offers a variety of courses on all levels. The study of Greek and Latin may be begun or continued at Duke. The first two years of the language provide a linguistic foundation and quickly introduce readings from several of the chief authors. More advanced courses offer concentrated study of single authors, literary genres, or periods. Classical studies courses provide an English language introduction to ancient literature as well as introductory and advanced courses in ancient history and ancient art and archaeology. Knowledge of Latin and Greek is not required for these courses. Small group learning experiences and independent study are stressed, and both freshmen and upper level seminars are offered.

The diversity of the field and the varying interests of its students prompts the department to offer three distinct major programs: Latin, Greek, and classical studies, with emphasis in ancient history or archaeology. Departmental majors may apply for a semester at the Intercollegiate Center for Classical Studies in Rome during their junior year as a regular part of their program.

Computer Science

The digital computer is assuming a steadily increasing role in our day-to-day affairs and has become an indispensable tool in almost all scientific research. It is also beginning to play a significant role in the study of linguistics and the humanities.

The department offers a variety of courses to enable undergraduates to perceive the implications of the computer, to utilize more efficiently the many computer facilities available to them at Duke University, or to prepare for a career in the rapidly expanding field of computer science.

The introductory course, Introduction to Digital Computation, makes no assumptions about the student's background in mathematics and is designed for the student who wants to attain an understanding of computers and programming, whether or not he plans to pursue the subject further. The course also serves as the introduction to more advanced courses on the theory of computer design, their capabilities, and their use. Other courses open to undergraduates cover computer systems, numerical analysis, data structures, programming languages, switching theory, statistical computing, information storage and retrieval, and computer simulation.

Since many of the exciting frontiers in computer science involve the marriage of computer science to other areas, the student majoring in computer science is required to take several courses in one other department. This provides the student with a more traditional area of knowledge in which to apply some of his computer expertise.

The faculty of the Computer Science Department will be happy to advise students on courses of study that will prepare them for a career in computer science.

Economics

This world is an inhospitable place. It gives up grudgingly fewer resources than we could use and we must compete with each other for the use of even these limited resources. The materials used to build a swimming pool for me are no longer available to build a swimming pool (or anything else) for you. The theater seat I occupy can no longer be used by you. The job I obtain is no longer an option for you to consider.

The manner in which these conflicting self interests among members of society are resolved is the subject matter of economic analysis. The purpose of economic analysis is to predict the consequences of "tampering with the system" (modifying the institutional arrangements of society). Thus, the job of economics is to answer "what if" questions. Some of these questions have been asked in recent years. What would happen if the government of the United States employed price controls? What would be the likely consequences of ending the military draft? Could a system of taxes solve our pollution problem?

The first courses in economics aim to develop in the student critical and analytical skills essential for understanding economic problems and institutions in both their contemporary and

their historical setting. Higher level courses are usually concentrated on particular economic problem areas: labor unions, monetary policy, market power, poverty, and so forth.

Although no particular vocational or professional goal is emphasized by the Department, economics majors are usually interested in a program of study which will prepare them for graduate study or professional training in economics or administration and/or in a general liberal arts program which might be either terminal or preparatory for the study of law.

For additional information write to the Director of Undergraduate Studies in the Department of Economics.

Education

At the undergraduate level, Duke University prepares teachers for both elementary and secondary schools. A student majoring in elementary education gains knowledge and skill in all of the areas taught in elementary school and acquires as well an understanding of child development and learning theory. The University prepares teachers for secondary schools in the fields of art, English, foreign languages, physical education (women), mathematics, music, the sciences, and the social studies. Prospective secondary school teachers major in the academic department of their principal interest and choose related work in the Education Department. There is a special major in science education designed to provide a broad background in the sciences and mathematics.

Students preparing to teach devote an entire semester of their senior year to courses in designated subject matter and professional education and to student teaching. During the last half of this semester they are engaged in full-time observation and student teaching in schools. During this half of the semester, students should plan to live in a community which is some distance from Durham. This will entail some additional living expense to be borne by the student teacher. Room rent refund is not made.

Advisers in the Department of Education will help in planning a program that will serve individual student needs and establish eligibility for admission to the student teaching program. Advisers will also help in designing a program to meet the requirements of the state or states in which the student desires certification. Students should consult an adviser in the Department of Education early in their program at Duke and should confer with this adviser at each registration period.

Electrical Engineering

Electrical Engineering utilizes the electric and magnetic forces of nature and the properties of matter to supply human needs. Because electricity is the most flexible form of energy available to man, the influence of the electrical engineering profession is far-reaching in a technological society. Electrical engineering majors at Duke typically choose either information processing or energy processing as emphasis areas in their curricula. Information processing involves the use of electricity and magnetism to generate, transmit, and store signals—as in television, radar, radio, electronic measuring equipment, and computers. Energy processing involves the use of electricity and magnetism for the generation, transmission, and control of energy—as in rotating machinery, power systems, and automatic control of industrial processes.

The academic program in electrical engineering is unusually flexible for an engineering curriculum. Three required courses in electrical engineering and four electrical engineering electives form the core of the curriculum, which also features a broad foundation in mathematics and the physical sciences. Usually ten to twelve of the thirty-two courses required for the B.S.E. degree are relatively free electives—a minimum of six in the humanities and social sciences.

Prospective majors in electrical engineering should designate the School of Engineering in their admission applications. Additional information concerning the study of engineering is available from the Office of Undergraduate Admissions.

English

The study of literature is, and will always be, one of the broadest avenues to a liberal education. It holds wide opportunities to approach and synthesize the dimensions of human knowledge and to deal, directly or indirectly, with the great minds of the past and present. These are, essentially, very practical functions just as, at the other extreme, to study literature is to gain insight into the very practical art of communicating through the written word. But perhaps most of man's conscious activity takes place neither on a high metaphysical plane nor on the level of the daily job; on the middle plane where man often lives and acts, literature holds the finest resource for understanding human character and all its complexities, for acquiring a sensitivity to the human condition and its workable

values. Finally, everyone has to some degree an aesthetic drive; the study of literature gives it depth, direction, and rich satisfaction.

The varied program of course offerings and the size and diversity of the Duke English faculty give the English major unusual freedom in the choice of his courses, teachers, and classroom styles. The student majoring in English is required to satisfy a pattern of distribution in the department rather than to take specific courses. Usually he will be able to follow his preferences within a wide range of English and American literature and also take courses in such areas as Elizabethan drama or nineteenth century English literature or contemporary fiction, poetry, and drama.

The seminar and independent study features of the curriculum afford both beginning and advanced students the opportunity to participate in the small-group learning experience. Courses in creative writing, available as early as the freshman year, are taught by members of the faculty who are themselves successful authors.

Geology

Geology is the science concerned with the study of the earth—the physical processes acting on its surface (water, wind, ice), its composition (rocks and minerals), structure (continents, ocean basins, mountains), economic products (oil, gravel, water, uranium), and past history (origin, shifting positions of land and sea, evolution of life).

Men and women versed in geology are called upon by government and industry to assist in determining the location of petroleum deposits, the nature of natural pollution in streams, or perhaps the prediction of earthquakes. Oceanography, seismology, hydrology, paleontology, and astrogeology are among the research specialties undertaken by modern geologists.

Courses of special interest to the non-major include Geological Environments and Man, The History of the Earth, and Introductory Oceanography. Following the introductory survey courses, basic training for a major in geology is taken in two fields—minerals and rocks, and stratigraphy and structure. The paleontologist must be trained in biology, however, and the mineralogist in chemistry, so the student of geology must extend his training into one or more of the related sciences or mathematics. Provision for interdisciplinary majors and close student-faculty cooperation within the Department are additional features of appeal to geology students.

Germanic Languages and Literature

The study of German is concerned with the language, literature, and cultural traditions of Germany, Austria, and German-speaking Switzerland, and with their cultural, political, and social institutions, since they determine and clarify the context from which the literature arises. Maximum use is made of German in all courses. After having mastered the basic skills of the introductory and intermediate levels, the student proceeds to courses in which the emphasis is placed on reading and analysis of literary texts. All students above the intermediate level have the opportunity to take part in small-group learning experiences which emphasize active contributions by the participants.

Two language laboratories, a German table, a German film series, informal coffee hours, and periodic programs arranged by Delta Phi Alpha, the German honorary, encourage the student's active use of German and bring him into frequent informal contact with members of the teaching staff. The opportunity to study in Germany exists with full credit for approved academic work taken abroad. Graduating majors compete for several scholarships to study at German universities for one year with all expenses paid. Career opportunities include such areas as government service (e.g., State and Defense Departments), export-import trade, and high school and university teaching.

Health and Physical Education

The physical education departments offer instruction in a wide variety of activities, opportunities for recreation, individual assessment and developmental programs, and theory courses.

In the men's department, a student undergoes an evaluation of his physical potential and gains an understanding of the physical education process. After a semester of an individualized program of activity, he elects courses suited to his needs. A wide variety of individual, dual, and team sports, as well as sailing and skiing are available. Although there is no major for men, a number of physical education courses are open as electives for the student who wishes to coach in high school, and for others who find them appropriate.

The women's department offers instruction and voluntary participation in eighteen

to twenty activities, most of which are at the beginning, intermediate, and advanced levels. It sponsors intramurals for women and for coed groups. Clubs in modern dance and synchronized swimming present performances several times during the year. Women's varsity teams compete in basketball, fencing, gymnastics, hockey, swimming, tennis, and volleyball.

History

The study of history provides insights into how people of different times and places grappled with the problems of organizing their societies and making life meaningful for themselves. Today, in our age of changing national and world perspectives, a knowledge of history—and of the methods used by historians to study it—is more important than ever before. The range of subjects offered by the department covers all periods of American history (including Afro-American), European history from classical to contemporary times, Asian, African, Russian, Latin American, and military history, the history of science, technology, and medicine, and the history of women. In all courses, emphasis is placed on encouraging the student to think critically and to master the various techniques of historical investigation through class discussion, lectures, and research.

Discussion sections or seminars add to the variety of learning experiences at every level, from introductory courses in European, non-Western, and American history to advanced seminars. Faculty of all ranks teach both the introductory and the more advanced courses.

The student majoring in history is urged to broaden his understanding by exploring other subjects. Indeed, the student who desires to combine historical studies with a related discipline, or to develop an interdisciplinary Program II curriculum, is encouraged to do so.

For the student majoring in other subjects, every effort is made to offer courses in history which fit a variety of interests and programs of study.

Management Sciences

The program in management sciences is designed to provide an understanding of businesses and other economic enterprises and their influence on society. Conceptual understanding of, and analytical reasoning related to, problems of modern management are stressed as opposed to "first-job" type skills.

The basic tools of mathematical analysis, information systems, organization theory, and economic theory are combined to develop a fundamental understanding of the role and function of complex business organizations in society.

This liberal arts oriented program provides the foundation for those desiring further study in law, business, or the other social sciences as well as those planning to continue their education as leadership trainees in many organizations. It is possible to combine this program with in-depth studies in other areas of the student's choice, such as mathematics, the natural sciences, or the other social sciences. Provision, too, is made for professional preparation in accounting, including adequate course work to prepare for the Certified Public Accountant examination.

Work leading to Graduation with Distinction is available for majors in the department.

Mathematics

Traditionally mathematics is divided into three branches: algebra, analysis, and geometry. The branch called algebra stems from arithmetic and today includes such subfields as linear algebra, polynomials, combinatorial analysis, and number theory, all of which have applications in the social sciences and computer science.

The second branch, analysis, was initiated by Leibniz and Newton toward the end of the seventeenth century. Here the new and basic concept of a limit was introduced, and it has since proved to be one of the most fruitful in mathematics. Analysis is usually considered the most important branch of mathematics since it is indispensable in physics, engineering, and other natural sciences. Today analysis includes such topics as calculus, differential equations, and complex variables.

The third branch of mathematics, geometry, has its origins in the Euclidean geometry studied by the ancient Greeks. Since that time other types of geometries have been developed, although at the same time many topics, geometric in origin, have been absorbed by algebra or analysis. One of the most important subfields of geometry, topology, is fundamental in the study of limits and in establishing the foundations of analysis.

Any student with an interest in the social sciences or the natural sciences should (and probably will be required to) take some mathematics. Normally such a student begins with calculus and proceeds through the calculus se-

quence. Warning! Any student with a weak background in mathematics should *not* take calculus simply to satisfy the natural science division requirement. If he must take calculus he is advised to take a pre-calculus course before entering Duke in the fall.

The Director of Undergraduate Studies in the department will provide further information to interested students.

Mechanical Engineering

Mechanical Engineering is the application of technology to the generation, transfer, and control of mechanical forces, heat, and states of matter. Five emphasis areas are available to the mechanical engineering major at Duke: automatic control and systems dynamics, materials science and engineering, design of mechanical systems, propulsion and energy conversion, and thermal and fluid sciences. The program also is sufficiently flexible to encourage students to emphasize interdisciplinary areas such as environmental quality and control, industrial administration and business management, ocean engineering, transportation systems engineering, and urban engineering.

The academic program in mechanical engineering features six required courses in mechanical engineering, together with a broad background in mathematics and the physical sciences. Twelve or thirteen of the thirty-two courses required for the B.S.E. degree are relatively free electives—a minimum of five in the humanities and the social sciences. Senior projects and undergraduate laboratories are available in the areas of systems dynamics, materials development, thermal and fluid systems, and systems response and control.

Prospective majors in mechanical engineering should designate the School of Engineering in their admission applications. Additional information concerning the study of engineering at Duke is available from the Office of Undergraduate Admissions.

Music

The Department of Music at Duke offers a curriculum of flexibility and latitude. Within the music major, students are encouraged to achieve a balanced experience in three divisions of music study—*theoretical analysis and composition, music history, and performance*—and to pursue one in upper levels of concentration. The non-major is welcomed into many of the courses and activities of the Music

Department. The performer may continue private lessons and participate in the various vocal and instrumental organizations.

The faculty is composed of artists and teachers, who are performers, composers, and historians. The low ratio of students to faculty affords the opportunity for sustained individual attention through private and independent study. Class lectures and seminars are supplemented by conferences with visiting scholars, composers, and performers.

Areas of specialization for music majors are the three divisions of music study cited above. In theory and composition, techniques of orthodox and electronic composition are taught by composers, and performances of student works are regularly scheduled. Music history aims at the evaluation of the music styles of Western civilization through reference to the artist and his era. This may be supplemented by the study of non-Western and primitive music. For students interested primarily in performance, private instruction is available in voice, piano, organ, and orchestral instruments. Opportunities for both solo and ensemble performance experience are abundant.

Nursing

Standard course requirements in the first two years of the School of Nursing program include two semesters of a laboratory science course (usually biology or chemistry); a freshman English course; three courses in the social science areas of psychology, anthropology, and sociology; a basic statistics course; and a two-semester human ecology course. Two semesters of physical education must be completed within the first two years. Other courses necessary to bring the lower division total to sixteen are selected by the student, with the assistance of an academic adviser, in accordance with specific goals and interests.

Although space is extremely limited, students are occasionally admitted for transfer into the nursing program. These students must make provision for meeting the human ecology requirement and are encouraged to seek advice concerning all aspects of transfer early in their planning. Courses being considered for transfer must be approved by Duke.

The focus of the junior and senior years is on the nursing phase of the curriculum. The third year is devoted largely to the broad role of nursing in health and illness while the senior year provides increased depth in both these areas. Required and elective courses in nursing are offered, including independent

study. Due to the flexible curriculum, students may develop an area of concentration within nursing or develop a second major in the humanities, behavioral sciences, or natural sciences. Individually planned experiences provide the student with opportunities to practice skills, develop an understanding of the entire nursing process, and assume those characteristics which mark the professional nurse.

Questions should be directed to the Office of the Dean of the School of Nursing.

Philosophy

Philosophy is the attempt to illuminate and, if necessary, to criticize the most fundamental concepts which are present in human thought. These concepts form the various ways in which we comprehend ourselves and the world in which we live. In metaphysics, these are such basic concepts as mind, matter, and real existence, and in epistemology, or the theory of knowledge, such concepts as rational belief, truth, evidence, and justification. Ethics is an examination of value, morality, goodness, and obligation. Logic deals with the concepts and principles which are involved in any argument or proof, such as validity, inference, and systematic thought.

A study of philosophy does not in itself lead directly to any career except the teaching of philosophy. But students planning a career in other areas will often major in philosophy because of its value in making us aware of the methods, assumptions, and goals of whatever field in which we might work, and in stimulating a broad vision of ourselves and the world by raising ultimate questions. Many law schools encourage a major in philosophy, for example, for its development of critical and analytic thought.

There are two types of courses included in the philosophy curriculum—systematic and historical courses. The former are more directly problem-oriented, whereas the latter approach philosophical problems in terms of the thought of some of the great thinkers of the past and present. Many courses of the former type, however, such as the standard Introduction to Philosophy, also involve a certain amount of reading in the philosophical classics.

Physics

The field of physics is one of the most absorbing subjects in the natural sciences. The theories of relativity and quantum me-

chanics not only have altered the direction of physics but also have changed man's philosophical ideas of nature. The invention of the transistor has produced a revolutionary change in the electronics and computing industries; the impact of the laser may prove to be just as revolutionary. The study of elementary particles is proceeding on the frontiers of our knowledge about the nature of matter.

At the introductory level, the Department of Physics offers a course to students who wish to learn about the ideas and discipline of physics and another to those who will need a more intensive study of the field either for a major in physics or in some other science. The undergraduate majoring in physics does not specialize in a given field of physics, but receives an extensive training in several basic areas. The sequence of courses is introductory physics, modern physics, mechanics, thermodynamics and kinetic theory, electromagnetic theory, optics, quantum mechanics, and an advanced physics laboratory.

At all levels there exists the opportunity to become aware of, and perhaps affiliated with, the research being carried out in the fields of nuclear physics, elementary particle physics, the structure of molecules and solids using both microwave and optical techniques, the properties of matter at temperatures approaching absolute zero, and theoretical physics.

Political Science

The Department of Political Science seeks to convey an understanding of the philosophies, practices, and problems of government and politics. In pursuing this broad objective a variety of materials and approaches (historical, legal, institutional, philosophical, empirical, and quantitative) is used. As a consequence, political science is a broadly based social science, one sharing the aims of a liberal arts education as well as one evoking concern for an understanding of the public policy problems of our time. Political science seeks to understand why human beings behave as they do in the arena of politics. It is concerned with the collection of empirical data about such behavior, with an examination of the process of decision-making, and with the normative judgments which influence a political decision. Although a benefit to those students seeking a broad liberal education, the study of political science is likely to be of special usefulness to those interested in a career in law, politics, business, journalism, teaching, foreign service, and government employment.

The student of political science should begin with the introductory course, the American Political System. He may then proceed into more advanced work in American politics, into the comparative study of political systems, into the study of international politics, or into the study of political theory.

A student majoring in political science must take a total of eight courses in the department, including at least two graduate courses or senior seminars, and at least one course in three of the four basic areas of the curriculum: political theory, American politics, comparative politics, and international relations. Opportunities are also available for independent study and internship credit during the course of study.

Psychology

Psychology is the study of the behavior and experiences of living organisms. Depending upon the nature of the particular problem, psychological study shares the character of the natural sciences on some occasions and that of the social sciences on others.

The undergraduate major in psychology does not prepare a student for immediate practical work in the field. Rather, the chief objective of the undergraduate program is to acquaint students with principles and methods and provide them with some understanding about how the broad range of psychological inquiry is conducted. The field rests on research findings about such diverse topics as brain-behavior relationships in animals and men, the determinants of learning and remembering, biological and social origins of motivation, the development of traits and attitudes, and the conditions and consequences of social influence.

The Department of Psychology seeks to recognize the diversity of content by offering four first-level lecture courses. Collectively, these courses are intended to give beginning students an opportunity for lively engagement with specific fields and methods of investigation.

Available at the intermediate and advanced levels are lecture courses as well as a variety of laboratory courses involving the design, and often the execution, of experiments in specific problem areas. The latter are taught in small groups of twelve to twenty students. For the capable major who seeks intensive involvement with special problems in research and theory, opportunity for study is available in group tutorials, graduate-undergraduate seminars, and independent work under faculty supervision.

Public Policy Studies

Public policy is the formal product of governmental action. The academic study of public policy involves analysis both of the processes by which government organizations design and implement particular policies, and of the effects which those policies have on society. The undergraduate major in public policy studies, offered by the Duke Institute of Policy Sciences and Public Affairs, aims to provide students with the theory and tools needed to perform policy-related field research, evaluate the impact of specific policies, and make complex policy decisions.

Through a series of core courses on economic and political analysis, statistical methods, and normative theory, majors in public policy studies will acquire a set of analytical tools. They will gain first-hand experience in utilizing these tools by taking a multidisciplinary internship course, which combines two semesters of classroom study of a particular problem area with a summer internship of work in an organization developing policy for that area. Internship courses deal with communication, health, justice, urban services, education, international economic issues, and environmental matters.

Religion

If entering students have had courses of instruction in religion, they will, very likely, have had them in contexts quite different from that provided by the Department of Religion at Duke. Rather than to inculcate or discipline faith or belief, the function of the department is to address with various methods the subject matter and problems around which it is organized. This means that work in religion supports and is complemented by work done in other departments of the University, especially in the humanities and the social sciences.

The faculty of religion attempts to clarify for students the importance of the religious factor to a period of history or to some form of human experience. It attempts as well to increase in students their appreciation for matters of religion and their ability to employ appropriate methods for understanding them.

The nature of the material and the range of approaches allow the major in religion a breadth of choices for concentration, providing him with a basis for entering later either professional or graduate study in religion or professional training or advanced work in some other field. Non-majors will find courses offered by the department that are related to work they are doing in their own major fields.

The principal areas of work within the department are these: Biblical studies, the history of Christian life and thought, the history and phenomenology of religions, religion and social sciences, and religion and the humanities. The department regularly offers seminars and courses open to freshmen which lead to more advanced work within these several areas.

Reserve Officers Training Program

The Department of Aerospace Studies (AFROTC) functions as a regular department of instruction. It provides to selected college men and women a professional education leading to a commission as a second lieutenant in the Air Force Reserve. Freshmen and sophomores enroll in the General Military Course and, upon its successful completion, may apply for continuation in the Professional Officer Course. A provision exists for interested cadets to request delay of active duty for the purpose of attending graduate school subject to the approval of Air Force Headquarters.

Qualified freshmen and sophomores who earn a C+ average may apply for an Air Force Scholarship during the spring semester. At Duke this amounts to approximately \$3,700.00 annually and is effective beginning in the fall of the following school year. No additional active service commitment is involved.

Seniors who go on to pilot duties will participate in a 25-hour Flight Instruction Program using light aircraft.

Students wishing to learn more about this program should address their inquiries to the Professor of Aerospace Studies, Duke University. Advanced registration may be made in the manner prescribed by the University for other courses, or by contacting the Department of Aerospace Studies, Room 138, Social Science Building, during Freshman Week.

The Department of Naval Science offers a course of professional studies, complementary to other departmental curricula, leading, upon graduation, to a commission in the Navy or Marine Corps or their Reserves. Students selected in the annual national competition are enrolled in the NROTC College Scholarship Program which provides full tuition, books, and \$100 monthly allowance for up to four years. Other students select the College Program which provides only the \$100 monthly allowance in the junior and senior years. Provision exists for delay of active

duty to attend graduate school. For additional details see the section on Financial Information and write to the Director of Undergraduate Studies, Department of Naval Science.

Romance Languages

When a student elects to concentrate in French or Spanish, he has decided to study in depth two important aspects of a particular culture—the language and the literature. At Duke he may elect either a language or literature major. Each channel will require courses in both language and literature, but in different proportions. Skill in the use of the language will provide insights and appreciation of literary works, and conversely acquaintance with literary works will strengthen the language skills. Both language and literature will create appreciation and sympathy for the people whose culture they represent.

The study of a national literature must be made within the perspective of the humanities and history. It is important, then, to balance the major literary program by incorporating into it related study in history, fine arts, and other literature. In the language major related study is desirable in other languages and in linguistic theory.

Courses in Italian and Portuguese are offered by the department although neither may qualify as a major area of study.

Students may take advantage of Duke's association with the Vanderbilt Abroad programs or the Junior Year Abroad programs of other colleges and universities.

In the senior year, especially qualified students may pursue independent studies leading to Graduation with Distinction. Career opportunities for Romance language majors include such areas as government service, international agencies, export-import trade, international transportation, social service in minority areas, libraries, museums, and high school and college teaching.

Slavic Languages and Literature

Russian, a language spoken by over two hundred million people in the Soviet Union, ranks with English and Chinese as one of the major world languages. A knowledge of the language is indispensable in many positions in the federal government, private business, library work, and research institutions dealing with social or natural sciences. The recent political and economic rapprochement between

the United States and the Soviet Union promises to open up many new areas in which Russian specialization will be at a premium. There is also a growing need for qualified Russian teachers on the high school and college level.

Practical advantages aside, the study of Russian literature is richly rewarding as an esthetic and cognitive experience. The body of Russian literature is second to none in quality and serves to increase the student's understanding of Soviet culture.

Despite the popular misconception concerning the special difficulties of Russian, the language is a member of the Indo-European family of languages and is thus related to English with which it shares many cognates. The Russian alphabet can be mastered in about two weeks; Russian syntax is much less complicated than German or even English.

Russian majors take four years of language instruction including reading in the original Russian of literary and historical texts in the higher level language courses. A variety of courses on individual writers and literary periods exists in translation for majors and non-majors alike, although majors are required to do part of the reading in Russian in these courses. The emphasis is increasingly placed on the more relevant periods of the nineteenth and twentieth centuries. In addition to Russian literature, courses in Polish literature, the second most important Slavic literature, are offered in English translation.

Sociology

Sociology is concerned not only with the description of social patterns but with their explanation. The investigation of the underlying conditions that produce, maintain, and transform social life is the central focus. Through a never-ending interplay between ideas or theories and the systematic collection of information, sociologists seek to develop generalizations about such matters as race relations, the organization of communities, and deviations from normal social behavior. As a part of a liberal arts curriculum, sociology contributes to a greater understanding of human experience and society.

A general course introduces the student to the scope, concepts, and methods of sociology while preparing him for more concentrated study in specific areas such as industrial relations, urban studies, the family, mass communications, and collective behavior. Different perspectives on social life are re-

flected in courses in demography, social psychology, social organization, and the analysis of the life cycle.

The Department of Sociology offers a varied program to undergraduates who wish to concentrate on the study of human behavior. Many majors view their work in the department as preparation for graduate work in the social sciences. Others find it valuable as background for professional training in such diverse fields as law, social administration, and health services. Still others find that it provides direct access to positions with local, state, and federal government, community action and development programs, and other such work in applied sociology.

The department provides its majors with opportunities for learning the basic skills needed for sociological research. Courses are offered in sociological theory, methodology, and statistics, and advanced undergraduates are encouraged to take part in one or more of the on-going research projects within the department. Majors who are studying for honors may conduct their own individual research projects.

Zoology

The complex nature of modern biology is reflected in the diversity of programs which are open to zoology majors. Students who are primarily interested in obtaining a broad, basic training in biology will find that a variety of courses in genetics, ecology, morphology, physiology, and cell and developmental biology is available.

Other students may specialize in such interdisciplinary subjects as physiological ecology, biochemical genetics, biophysics, and marine biology, or more strictly zoological subjects such as animal behavior and vertebrate biology. At the more advanced levels, students are encouraged to become involved in research tutorials and other special projects in their areas of specific interest. Junior and senior students may apply for a semester's study in the interdisciplinary program in the marine sciences at the Duke University Marine Laboratory in Beaufort, North Carolina.

Most of the recent progress in biology has come, not from the expansion of traditional fields of botany or zoology, but from the incorporation of ideas and techniques derived from the physical sciences and mathematics. As part of their biological training, most zoology majors need to become familiar with at least elements of calculus, physics, and

organic chemistry. The Zoology Department recommends introductory courses in these subjects and frequently recommends additional work in the appropriate areas.

With the permission of the Director of Undergraduate Studies in Zoology, students who score 3 or better on the CEEB Advanced Placement Program Examination in Biology, or who complete two years of high school biology may bypass the introductory course.

Special Programs

The Program in Canadian Studies is designed to provide the student with an understanding of Canada and its problems and prospects. It may be taken as part of a major in history and political science, as a supplement to any other major, as part of an interdepartmental concentration, or under Program II.

Comparative Area Studies in Asia, Africa, and Latin America is a new interdisciplinary major which includes extensive coursework in a particular geographic area and its language, less extensive work in a second geographic area, and additional study in an appropriately related discipline. An interdisciplinary seminar in the senior year is designed to bring together a number of themes for comparative treatment.

Comparative Literature is the study of the interrelationships of national literatures through the comparison of significant authors, ideas, currents, themes, and literary genres in different ages and cultures. The Committee on Comparative Literature assists students in creating responsible programs, although all majors take introductory and advanced courses in comparative literature and read extensively,

in the original, the literature of a foreign language. Reading knowledge of a second foreign language is required.

The Marine Sciences Program makes it possible for qualified juniors and seniors to live and study at the Duke University Marine Laboratory, Beaufort, North Carolina, during the spring term. The semester program consists of two courses and a seminar in addition to independent research. The design of the program permits a student to continue study at the Marine Laboratory during the summer either by participating in senior-graduate courses or by continuing the independent studies initiated during the spring term.

The University Program in Genetics provides a coherent course of study in all facets of biology related to genetics. Students interested in preparation for advanced work in genetics or wishing to take an interdisciplinary major in this area may do so with departmental approval.

Asian and African Languages—Chinese, Japanese, Hindi-Urdu, and Swahili—are offered for course credit, although no major is available in the field.

Linguistics courses may be taken as electives by advanced students, although no major is offered in the field.

The Program in Medieval and Renaissance Studies, an interdisciplinary major, is designed to provide the student with a well-rounded understanding of the historical, cultural, and social forces that shaped the medieval and Renaissance periods. The program is divided into four areas of study: fine arts (art and music); history; language and literature (French, German, Greek, Italian, Latin, and Spanish); and philosophy-religion.

Statistical Profile Students Entering 1973

Class Rank by Decile

TRINITY COLLEGE OF ARTS AND SCIENCES ENGINEERING NURSING ALL COLLEGES

Public	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered
Top 10%	2551	1066	502	203	170	78	107	80	62	2861	1316	642
2nd 10%	739	74	49	63	43	20	47	19	13	849	136	82
3rd 10%	336	34	25	29	12	8	25	7	6	390	53	39
4th 10%	146	7	5	13	4	2	12	0	0	171	11	7
5th 10%	74	6	4	11	1	1	3	0	0	88	7	5
Below	73	6	4	3	0	0	5	0	0	81	6	4
Not Given	555	122	52	33	15	4	22	7	5	610	144	61
Total	4474	1315	641	355	245	113	221	113	86	5050	1673	840

Private	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered
Top 10%	437	198	97	37	30	8	14	9	2	488	237	107
2nd 10%	237	69	36	19	13	5	6	3	3	262	85	44
3rd 10%	181	38	23	16	11	7	9	3	3	206	52	33
4th 10%	129	22	17	11	6	5	4	1	0	144	29	22
5th 10%	97	9	6	6	5	2	2	1	0	105	15	8
Below	170	16	14	18	7	4	5	0	0	193	23	18
Not Given	610	169	76	36	23	16	18	6	5	664	198	97
Total	1861	521	269	143	95	47	58	23	13	2062	639	329
Public & Private	6335	1836	910	498	340	160	279	136	99	7112	2312	1169

Scholastic Aptitude Test Score Range

TRINITY COLLEGE OF ARTS AND SCIENCES ENGINEERING NURSING ALL COLLEGES

Verbal	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered
700-800	534	344	136	20	20	7	5	5	3	559	369	146
650-699	911	425	192	55	53	19	14	12	7	980	490	218
600-649	1308	462	215	108	97	40	45	38	27	1461	597	282
550-599	1229	307	174	108	97	45	56	40	29	1393	440	248
500-549	990	171	112	93	63	40	47	20	14	1130	254	166
Below 500	994	127	81	87	14	9	107	21	19	1188	162	109
Not Given	369	0	0	27	0	0	5	0	0	401	0	0
Total	6335	1836	910	498	340	160	279	136	99	7112	2312	1169

Math	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered	Applied	Accepted	Entered
700-800	1073	587	248	189	179	72	7	6	3	1269	772	323
650-699	1391	507	241	135	105	59	23	19	12	1549	631	312
600-649	1313	364	191	73	49	28	51	41	33	1437	454	252
550-599	1097	206	120	41	4	1	69	37	27	1207	247	148
500-549	486	110	69	19	3	0	48	22	16	673	135	85
Below 500	606	62	41	14	0	0	76	11	8	576	73	49
Not Given	369	0	0	27	0	0	5	0	0	401	0	0
Total	6335	1836	910	498	340	160	279	136	99	7112	2312	1169

TRANSFERS

School or College	Applied	Accepted	Entered
Engineering	22	15	10
Nursing	93	12	10
Trinity College of Arts and Sciences	535	106	79
Total	650	133	99

FINANCIAL ASSISTANCE 1973-1974, ALL UNDERGRADUATES

Awards Based on Need

Amount of Need	Number of Students	Gift Funds	Loan Funds	Job Funds	Total Aid
\$1-\$999	100	\$ 19,360	\$ 34,620	\$ 22,900	\$ 76,880
\$1000-\$1999	288	156,068	176,700	98,300	431,068
\$2000-\$2999	382	526,568	237,700	155,750	920,018
\$3000-\$3999	260	593,502	147,820	119,000	860,322
Over \$4000	110	333,640	71,500	41,150	446,290
Total	1140	\$1,629,138	\$668,340	\$437,100	\$2,734,578

GEOGRAPHICAL DISTRIBUTION

	Number Matriculated	Percentage of Class
North Carolina:	195	17
Other South, Southeast: (Ky., Tenn., Ark., La., Miss., Ala., Ga., S. C., Fla.)	215	18
Midwest: (N. D., S. D., Neb., Kansas, Mo., Iowa, Minn., Wisc., Ill., Mich., Ind., Ohio)	138	12
West, Southwest: (Wash., Oreg., Calif., Nev., Idaho, Mont., Wyo., Colo., Utah, Ariz., N. Mex., Texas, Okla., Alaska, Hawaii)	67	6
Mid-Atlantic: (D. C., Md., W. Va., Va.)	191	16
New England: (Maine, N. H., Vt., Mass., R. I., Conn.)	56	5
Northeast: (N. Y., N. J., Penn., Del.)	294	25
Foreign:	13	1
TOTAL	1169	100

University Calendar—1974-1975

1974

August	
29	Thursday—Orientation begins: assemblies for all new undergraduate students
September	
3	Tuesday, 9:00 a.m.—Fall semester classes begin
October	
18	Friday—Last day for reporting midsemester grades
28-31	Monday-Thursday—Registration for spring, 1975
November	
26	Tuesday, 6:00 p.m.—Thanksgiving recess begins
December	
2	Monday, 9:00 a.m.—Classes are resumed
8	Sunday—Founders' Day
10	Tuesday, 6:00 p.m.—Fall semester classes end
11-12	Wednesday-Thursday—Reading Period
13	Friday—Final examinations begin
20	Friday—Final examinations end

1975

January	
9	Thursday—Orientation begins: assemblies for all new students
10	Friday—Registration and matriculation of new and nonregistered students
13	Monday, 9:00 a.m.—Spring semester classes begin
February	
21	Friday—Last day for reporting midsemester grades
March	
7	Friday, 6:00 p.m.—Spring recess begins
17	Monday, 9:00 a.m.—Classes are resumed
3/31-4/3	Monday-Thursday—Registration for fall and summer, 1975
April	
25	Friday, 6:00 p.m.—Spring semester classes end
26-28	Saturday-Monday—Reading Period
29	Tuesday—Final Examinations begin
May	
6	Tuesday—Final examinations end
10	Saturday—Commencement begins
11	Sunday—Commencement: Baccalaureate Service and Graduation Exercises

"If you share these concerns about what is going on out in 'the real world', if you want to experiment with alternative ways of relating to people of the opposite sex or of opposite views, if you want an education which speaks to these concerns and alternatives, you can find it at Duke University, but you have to work for it. We welcome you to experience Duke, and we want to share with you in our struggle to make the Duke community one in which learning, love, and life are integrated."



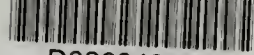
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